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Address of President*

RUSSELL H. OPPENHEIMER
Dean and Professor of Medicine, Emory University School of Medicine, Atlanta, Georgia

"Hindsight is more accurate than foresight." All of us have heard this statement many times. The original author surely did not mean that all our attention should be directed to the past. The implication more likely is that by reviewing the past we can better estimate the future. Or it might be said that it is well occasionally to stop and ask ourselves whence we come and whither we go. With this idea in mind, I will try to relate some of the thoughts about this Association which have come to me during the years I have observed it or taken part in its activities.

The first thing which comes to mind is a query as to what this Association really is. Trite, you say? But is it? Organizations are not necessarily in fact and in action what they are constituted to be. According to our constitution this Association is composed of member colleges of medicine and not of individuals. We are but the representatives of these schools. As such, it is assumed that we express the opinions and viewpoints of our faculties. The reason for mentioning this is that it is important that the true nature of this Association be understood if our work is to be acceptable to other organizations having interest in the same fields of activity. It is equally important that this Association be what it is intended to be.

This brings up the cognate question of how the faculties of medical schools can be brought into full knowledge of what the Association is doing and how they may take part in the formation of the opinions expressed by their representatives, whether these representatives be deans or other members of the faculty. I will not attempt to answer this question. One activity of the Association, however, is playing an increasingly important role in this direction, its JOURNAL. Conversations with many teachers in medical schools bring out the satisfying fact that the JOURNAL is read widely and with interest. Credit for this JOURNAL belongs almost wholly to our secretary, Dr. Zapffe, who has labored unceasingly to make of it the splendid publication that it is.

Now, what of the future? In order to give direction to any consideration of the future there must be a brief review of the past. As I look back to the first

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years of my entry into a dean's work I see that this Association devoted much of its time to questions of what to teach and how to teach it. The curriculum was laced up in a corset of standardization which fixed courses as well as curriculum. Subsequently, the strings of this corset were loosened enough to make possible a full academic breath. Even some educational experimentation was discussed and permitted. Subjects formerly accorded slight recognition in the curriculum were brought into prominence, among them psychiatry, pediatrics, obstetrics and public health. These discussions were important. They are important now and will be in the future; in the first place, because modern teaching methods are artificial, influenced, in part, by the enthusiasm characteristic of youth, and, in part, by the dogmatism frequently found in those of riper years; in the second place, because the teaching personnel of medical schools is constantly changing, with new, inexperienced teachers coming in, some of them, even to the chairmanship of a department (some day we may have courses of instruction for those who wish to teach in medical schools, and for deans); and, finally, because the subject matter of medicine is changing constantly. For example, this year our program for the first time includes a discussion of industrial hygiene.

That this Association can properly concern itself with the problems of the curriculum and with teaching methods will not be debated by any one. However, we concern ourselves with things outside this field. One which has received much discussion is that of preparation for the study of medicine. Some one in this Association expressed the opinion that adequate preparation for the study of medicine required thorough training in the English language, training in the use of the library and in the use of the laboratory; all of these for the sole purpose of teaching the student how to search for the truth and to realize it. Even on this point, as in the case of the curriculum, there is no room for debate as to the propriety of this Association concerning itself with the quality of preparation it expects of its applicants or of expressing to the colleges that prepare them our opinion as to what applicants to medical schools should or should not have.

Other activities of the Association have been exerted in the same direction. Among these are the aptitude test and the study of accomplishment of students from the many colleges from which we receive applications—both of which studies are helpful in the selection of students.

Our interests have drawn us thus into consideration of the students who apply to us for admission, the character and quality of their college preparation, the effectiveness of the schools in which they received this preparation and their achievement in the medical school. We have spent much time in adjusting and readjusting the medical school curriculum and our methods of teaching. We continue to adapt our medical students' education to their needs as interns and as practitioners, and attempt to develop in students the inquiring mind which will remain with them throughout their future career. Two questions stand out in my mind as a result of these observations: Shall we continue to be the guardians of our own house? And shall we concern ourselves with any of

the problems which are incident to the continued education of the medical graduate and with the changing factors which influence medical practice?

The question of guardianship, of course, refers to the approval of medical schools. It is nonsensical to assert that we are not able to evaluate our own work and to institute changes necessary to the maintenance of high educational standards. Who else is better prepared to determine the quality of medical education present in any school? Who else is in a better position to offer assistance to medical schools? Sympathy, understanding, and support are more important in this work than mere police power. This has been demonstrated adequately in the past. Our work in this field has been recognized by universities and by boards of medical licensure. Periodic visiting of all medical schools in the Association (for example, at five-year intervals), with adequate reporting to the Association will be beneficial not only to the school visited but to the other schools as well. Yes; we can be the guardians of our own house—that is, if we wish to be; if we look to our own organization for such guardianship; if our interest in the Association is genuine and not the residue of an interest centered elsewhere.

With reference to this point I wish it fully understood that I willingly concede that other organizations may have an interest in medical education, for they are concerned in one way or another with the product of medical schools—our graduates. They have much to offer us and we can profitably seek their support. On the other hand, the duplication of medical school surveys is needless and disturbing and may result in conflict and confusion. It would seem thus that other organizations could best help by recognizing our proper function in maintaining appropriate educational standards and, if necessary, by exercising some sort of pressure on us to keep our house in order.

What then of the student after he has received his doctorate in medicine? Have we completed our responsibility to him? This question seems analogous to the relationship between parent and child. Surely it is not sufficient for parents to give their children what they deem the equipment necessary to meet all future life's problems. The parent is certainly defaulting his responsibility if he does not interest himself as a citizen in helping to shape the conditions of life in which his children must live. It would seem that this Association is in a similar position as regards medical graduates. This might not be true if medical science, medical practice, and the economic and social factors influencing it were not all undergoing constant change. Although we sing the praises of our medical forebears it is nearly impossible to conceive of the changes which have taken place since their day; yet, in many ways, the application of medical advances has not kept pace with their discovery, nor has medicine as a social agency adjusted itself apace with changes in the society it serves.

This morning we discussed the internship. We are deciding to cooperate with hospitals in maintaining internships at an educational level equivalent to a continuation of the education the intern received as a medical student. Certainly, there are problems to be solved if we, as an organization, take up this work.

Other organizations may feel that this Association is exceeding its responsibility. In this, as in everything else, it is for us to determine what are to be the limits of our responsibility, and, having so determined, to act with decision and thoroughness.

And now, as I come to conclude this recitation of thoughts about the Association, I know many of you are asking, "Just what has he been trying to say; to put over?"

The answer is: The Association of American Medical Colleges is the primary, the fundamental organization responsible for medical education on this continent. This primary responsibility demands the primary interest and effort of the deans and the faculties of American medical schools to the end that we may with accuracy determine the problems which come within our sphere of activity, envision our proper course of action, and then act with the same vigor and effectiveness we try to develop in our students for their use in solving "the problem of the patient."

The Internship*

WILLARD C. RAPPLEYE
Dean, Faculty of Medicine, Columbia University
President, Advisory Council on Medical Education
New York City

This symposium is a follow-up of the discussion held during the 1939 meeting of the Association, the recommendations of the Advisory Council on Medical Education and the report of the Commission on Graduate Medical Education as they concern the internship.

There is general agreement that the internship is an essential part of the preparation of a physician. It is required for licensure in twenty-two states and four territories and for the M.D. degree in twelve medical schools in the United States and three in Canada. The Advisory Council on Medical Education has recommended that an internship of satisfactory educational content be made a universal requirement for admission to the licensing examinations. The implications to medical faculties are clear. The hospital period should serve as a base for beginning the independent practice of medicine or for further training in some specialty. The preliminary period of hospital experience is probably the most important phase in the development of a competent doctor because it provides opportunity to the student for practical application of his knowledge under the direct supervision of qualified physicians and to obtain graduated responsibilities for the actual care and treatment of patients. It is important that every effort be made to improve the educational experience of the hospital period of training and to relate it soundly to the medical course proper and to the professional needs of the young physician.

A great deal of constructive work on this large problem has been done by the medical schools and hospitals and particularly by the Council on Medical Education and Hospitals of the American Medical Association which has annually prepared a list of hospitals approved by it for intern training. The criteria on which approval rests include the size of the hospital, the patient turnover and daily census, annual admissions, staff organization, laboratory and outpatient facilities, autopsy rate, library and radiology equipment, patient records, the schedule of work and instruction of the intern and similar features which can be evaluated quantitatively with little difficulty. Everyone working with the problem realizes, however, that these criteria are not the whole story. All of these elements are important, and the hospitals, the profession and medical schools are greatly indebted to the Council on Medical Education and Hospitals for preparing the foundations on which a qualitative evaluation of internships may be formulated on a basis more educational than that now in force. As suggested from several sources in the last year or two, it seems apparent that the next step is that of supplementing the basic data of the Council on Medical

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Education and Hospitals by direct cooperation between hospitals and medical schools in an effort further to improve the educational content of the internship.

Those who expect that some easily applied or mechanical formula can be used in reaching a decision on a given internship will be disappointed. The details of arrangement must be adapted to the opportunities in each hospital or service. The type and arrangement of the hospital period should not be standardized. It is important that the educational features of the internship should not be rigid or uniform but should provide a variety of opportunities of high quality adapted to the educational needs, previous preparation and life programs of different individuals. The present trend of medical education, in common with that of all phases of higher education, is toward adapting the program to the needs, capacities, interests, preparation and plans of the individual student rather than providing a uniform, rigid discipline that is identical for all students.

The internship is only a part of the whole scheme of medical education. Several kinds of internships should be provided to meet the requirements of different students. All, however, should aim to round out and complete the earlier period of preparation in the medical course proper and should be arranged to facilitate the continuity of that training.

Any educational undertaking worthy of the name includes a number of intangibles which must be considered in arriving at a judgment of its merits. In addition to the factors which can be quantitated easily there are other factors of far greater importance in determining the value of an internship. The clinical competence and ethics of the staff, their qualifications to provide satisfactory instruction, their interest and willingness to devote sufficient time to the educational needs of the intern, the degree of responsibility and supervision of intern duties, the quality and type of staff conferences, seminars and other teaching activities are among the really essential features of a satisfactory hospital training. Appraisal of these fundamentals can be made only by direct study of the actual performance of the interns, evaluation of the quality of their daily activities and by first hand knowledge of the competence of those who provide the instruction. It is obvious that these determinations cannot be made by questionnaires or brief inspections at long intervals.

It has been suggested that a plan of cooperation between the medical schools and hospitals already approved for internships be worked out for strengthening the intern training and integrating it more satisfactorily with the medical course proper. This Association has initiated such a plan of cooperation with the unanimous endorsement of the Advisory Council on Medical Education on which are representatives of the three national hospital associations, the Federation of State Medical Boards of the United States and nine other national educational and professional bodies. The objectives are to provide educational collaboration between the approved hospitals and the medical schools; to insure more constant and continuing contact and advice between these two groups, and to supply information on internships to the fourth year medical students and the medical faculties. The Association has created a Committee on Internships and, for convenience of administration, eight regional subcommittees which

include all the medical schools in the United States. Each of these regional subcommittees has met during the year and the full committee convened a few days ago to formulate its program and proposals, including coordination with the Council on Medical Education and Hospitals of the American Medical Association, representatives of hospital organizations and others who are able and willing to contribute to this important phase of medical education and hospital activities.

The program is not one of inspection of hospitals. There are a number of agencies now engaged in that procedure. The plan does not duplicate the present activity of any organization but aims to supplement and extend the programs now in existence. It is one of consultation and assistance between institutions in their normal contacts in the several areas of the country. No mechanism has existed for close coordination of the medical schools and the educational efforts of hospitals except in university groups. The wider extension of that type of cooperation which has proven so effective should provide a noteworthy improvement in intern opportunities.

Whether or not the program should be combined directly with the inspections of the American Medical Association needs careful consideration. Some observers contend that the purposes of the two procedures are quite different and that many hospitals would prefer that the two purposes be kept distinct. The purpose of this Association is to elevate the instructional opportunities well above the usual minimum requirements and to establish continuous, frequent and informal cooperation with nearby hospitals to this end. Often the revision of plans and the trial of new programs require several years and numerous consultations during which formal inspection is not necessary. The occasional inspection of the results of such efforts by an outside agency is healthy and should be continued. Close collaboration of the two projects is highly desirable and can but contribute in the common objective of improving the hospital instruction and experience.

Although there has been much discussion of the merits of different forms of internship, the length and type of services and other features of the initial hospital period, some of which have been embodied in state laws, legal regulations and other devices of standardization, these features are educationally and professionally of secondary importance. Unfortunately, a considerable number of the hospital services are used inadequately for educational purposes and some internships are merely devices for securing a free house staff in the hospital, largely for the benefit of the institution and the doctors. Furthermore, the best appointments are usually secured by the superior students from the better medical schools. The less well trained students may be handicapped further by an inferior hospital experience.

A properly conducted rotating internship of sufficient length can be made a rich educational experience, but usually the periods assigned to each department are so brief that a student has opportunity to obtain only the most superficial contact with the subject matter of each division. He is given very little opportunity to benefit by the assignment to any single service or to have a long enough

period to obtain a real sense of professional responsibility for the care of his patients, which is the essence of medical practice. This serious defect of a plan which tries to present most of the clinical fields in a short period or which aims merely to provide a rapid presentation of cases and diseases rather than the problems of patients may actually destroy in students the careful, thoughtful approach to complicated clinical problems which is the aim of the earlier training in the medical school. One objective of that training is the development in the student of an attitude of responsibility for the medical care of the individual and of sound methods and habits of study which will provide him with permanent intellectual and professional equipment for his entire career. An internship which thwarts the development of that attitude and those sound methods and habits of study cannot serve the best interests of the profession, the student, the hospital, medical education or the public.

The usual "straight service," on the other hand, is apt to be unsatisfactory for the student who is going into general practice. Frequently, it is not well articulated with the basic medical course. Such a service often does not provide a sufficient range of experience with the usual disorders, accidents and disabilities seen in the community.

Some of the straight surgical appointments probably do more damage than good when they encourage the recent graduate to do surgery before he is really prepared in judgment, skill, basic training and experience to do it properly or safely. It is well known that the popularity of some of these services is due to the opportunities provided for the interns to do major surgery. Contact with and watching expert operators is liable to create the impression that surgery is relatively easy and largely a matter of operating room technic. The development of real graduate medical education and the activities of professional societies and of the specialty boards and their Advisory Board for Medical Specialties will gradually correct these faults.

Neither the usual short rotating service, which provides a hurried, superficial experience in many departments, nor the usual long straight service, which provides an experience in a single field, meets the needs of most students. The so-called mixed services have been developed in an attempt to provide a sufficiently long and intensive experience in a single subject, particularly in internal medicine, and a shorter period in another field, such as nonoperative surgery, pediatrics or obstetrics. They have the merit of flexibility and can be made to fit the educational needs of the student. They permit him to improve and extend his knowledge and skill in methods of diagnosis and treatment and to become acquainted with a sufficient range of the usual diseases and accidents to make him a reasonably safe and competent practitioner. They provide the most satisfactory preparation for general practice or for further training in a limited field of practice than do most rotating or straight services.

The fact that there are more internships open each year than there are graduates of the medical schools of the country makes possible important adjustments in the total internship situation without handicap to graduating classes. In the United States this year there are available 6,791 new intern appointments

approved by the Council on Medical Education and Hospitals of the American Medical Association and 5,097 graduates from medical schools. Some of the services are for more than twelve months. It is well known that a number of the internships now approved do not fully meet educational standards. The difference between the number of internships available annually and the number of medical graduates suggests the possibility of enforcing higher standards of approval, which, if applied would reduce the number of approved institutions. What effect the telescoping of the fourth year clerkships and the internship would have can be determined only after a trial of such a proposal. The lengthening of some services to provide a more complete training, particularly for those going into general practice, or the conversion in some instances of existing internships into residencies for graduate training are also to be considered. Some internships are filled by recent graduates who take a second period of hospital training which often is a repetition of the earlier training.

Judgment regarding an internship must rest on the competence and character of the staff and their ability and eagerness to provide adequate supervision and instruction. Any plan must be predicated on proper care, treatment and follow-up of patients, daily rounds, guidance of the intern in the management of patients, reasonable and increasing clinical responsibilities for the intern, seminars, discussions, progress notes of diagnostic and therapeutic procedures, adequate consultations, laboratory studies, use of the library and other factors which contribute directly to the further education of the young physician. In order to insure maximum use of the facilities and personnel for intern training the staff must organize itself for this purpose, either through a committee or an individual charged with the responsibility for mobilizing the educational resources of the institution and for seeing that the policies and program are actually carried out.

Hospitals which cannot develop a satisfactory instructional plan because of lack of facilities, inadequate staff or absence of educational interest would benefit by employing a paid house staff recruited from graduates of recognized hospitals. This can be done with little additional expense. Many of these hospitals can and do conduct excellent services for patients and can fulfill their community functions and in some instances contribute importantly to research or graduate training for special fields of practice.

Most hospitals have welcomed the interest of medical faculties in their internships and increasingly they are seeking a closer relationship with the medical schools. In a number of localities, informal consultations between the hospital and school groups of the neighborhood have long existed and in others they are proceeding. This is the natural and healthy growth toward a program of mutual assistance which is bound ultimately to produce satisfactory results.

Closely associated with the problems of the internship is the development of true graduate education in those hospitals which can meet adequate standards. A few general comments on the relationship of the internship and graduate medicine may be made. In contrast with the attitude toward the internship there is not as yet unanimity regarding the residency as an integral part of medical education. The reason is not difficult to find. Widespread serious

educational interest in graduate medicine is of recent origin. Adequate preparation for competence in a specialized field of medical practice in modern society, however, is as much a phase of medical education as the teaching of anatomy was one hundred years ago. There is agreement that a satisfactory plan for such training, moreover, can best be worked out between hospitals, medical schools and universities which already are charged with the responsibilities of the other phases of medical education and in collaboration with the various professional organizations interested in adequate preparation for the different fields of practice. Integration of the graduate phases with those of the basic preparation for medical practice is highly desirable and is being gradually accomplished in a number of centers. Most of the societies of specialists and their boards of certification which have been so largely instrumental in developing interest in graduate training emphasize the importance of the educational components in that training.

The residency is now recognized as the most satisfactory method of preparation for specialization. In ten years the number of such hospital services has increased 100 per cent with consequent effects on internships. At present there are 4,392 residents and 726 fellows in institutions approved by the Council on Medical Education and Hospitals of the American Medical Association. During the last five years the number of the three year services has increased 500 per cent. A sufficient number of residencies are now available in all but a few fields to prepare enough specialists for the needs of the country. Some of the services, as in the case of the internships, do not meet satisfactory educational standards, however. Those that cannot fulfill the standards should be called house officerships or some other designation, rather than residencies. All of you are familiar with the requirements effective in 1942 for recognition of specialists as formulated by the specialty boards, the Advisory Board for Medical Specialties and the Council on Medical Education and Hospitals of the American Medical Association. The responsibility for providing the necessary training falls primarily on the hospital.

It is apparent that in many hospitals plans for such a program can be made only by modification of existing internships and increased opportunities for laboratory studies. The close relationship between residency training and the internship in which the universities and licensing bodies are immediately concerned suggests the necessity of active cooperation between the hospitals and these agencies as well as with the various organizations of specialists. The thesis advanced by some that medical education, and particularly its hospital phases, should be under the exclusive direction and control of medical societies is in the long run unworkable. These organizations have been and should continue to be of the greatest help in giving practical suggestions and support to the efforts of those directly charged with the responsibilities of professional training. The program promises to reach its fullest success through the active cooperation of the hospitals, medical schools and universities under whose joint auspices medical education at its several levels must be conducted. This is the method of approach which is both democratic and in keeping with sound principles of education.

DISCUSSION

DR. L. R. CHANDLER (Stanford University School of Medicine): Dr. Rappleye has reviewed the relationship between the medical student, the intern and the hospital resident, stressing the recognition that an internship is an integral part of the education of a young physician and not merely an apprenticeship.

The chief value of an internship is derived from the professional competence, ethics and teaching interest of the attending staff, and, almost to an equal extent, of the resident staff. Therefore, the quality of the professional staff of the hospital, not its physical facilities, should receive first consideration in evaluating the internship. The actual schedule of routine duties and procedures becomes almost insignificant in importance when a competent staff, interested and willing to devote sufficient time to teaching of interns, is assured.

Several medical schools require the successful completion of an internship in a hospital approved by its faculty before awarding the degree of Doctor of Medicine. This has certain advantages and permits such schools to approve only those hospitals which, in the knowledge of its own faculty, provide an internship which is satisfactory from an educational or training point of view. On the other hand, this system implies some responsibility on the part of the faculty to approve an internship for each one of its graduates. At times internships might be approved in hospitals with which the faculty has little or no contact, and certainly no direct professional control. This is true, particularly for the six or eight students with the lowest class standing each year. Such a system also tends to place the responsibility for securing internships on the dean or some faculty committee rather than on the student himself. There is also a tendency for these schools to appoint, as interns, students from their own school, to the exclusion of top ranking students from other medical schools. Nevertheless, the requirement of an internship before awarding an M.D. degree is one way in which the medical school and hospitals can and do cooperate effectively in providing interns and internships.

Local conditions vary so much in different areas and in different medical schools that it would be difficult to devise a system of internship approval that would be equally effective throughout the country. The ability, interests and aptitudes of the students in each class differ so much that it is highly desirable to have available various types of services in hospitals in different communities. The larger hospitals appoint as interns graduates from several medical schools each year. I am sure that administrators of such hospitals could not adopt programs for their interns if those programs were dictated by several medical schools.

It is gratifying that the number of licensing boards requiring an internship before licensure, is increasing. Experience with such requirements indicates their desirability, yet the responsibility of such licensure boards in requiring an internship before taking an examination for licensure is primarily the protection of society and not the educational standards of the internship which the applicant has served.

It is recognized that the training in some hospitals now approved for internships is considered inadequate or inferior by medical schools in the vicinity of such hospitals. Evaluation and appraisal of the competence and teaching ability of the staff and the regular requirements and behavior of the interns in a given hospital is a difficult matter. It is obvious that these problems should interest the medical schools, but I doubt the wisdom of requiring a medical school faculty in any given district to evaluate and publicly announce the approval or disapproval of hospitals in its own community. The national professional societies and the specialty examination boards can exert a tremendous influence tending to improve the internships in hospitals not connected with medical schools. The medical schools themselves should continue to improve the standards of the internship in their own hospitals. By mutual consultation and assistance between medical schools and hospitals, the standards of first year internships can be coordinated effectively with the undergraduate and advanced hospital training that

comprises the preparation of physicians. It should be the service under a given chief physician which receives approval, not the hospital.

Dr. Currier McEwen (New York University College of Medicine): It is always relatively easy to discuss a paper with which one wholly agrees, and I think all of us here find ourselves in that position. To me, the most striking feature of this symposium today is the fact that we can agree so thoroughly on most of these points which many of us would have found highly controversial a few years ago.

While it is not so surprising that we who are interested in medical education should agree in this way, it is impressive that the same point of view is beginning to spread through the various hospitals. It is now pretty commonly found in the official hospital associations; in organizations like the American Surgical Association, the American College of Surgeons, and the various societies of that kind; and, of course, in the specialty boards. Now that there is recognition of what should be aimed at, the problem remains to carry out the necessary steps.

Surely we would agree that the mechanical arrangement of the intern schedule is not the answer. A good many hospitals, however, still think of that as the solution, although, as Dr. Rappleye pointed out, it is the intangible features of the internship that loom really large. One can conceive quite readily of a very good internship in a hospital with a mediocre plant and with a not too well designed schedule of intern service, provided it had an outstanding staff interested in teaching. Without such a staff and the various intangibles Dr. Rappleye has mentioned, on the other hand, the internship must be mediocre no matter how superb the physical arrangements may be. Surely we can all think of brilliant examples of this.

In other words, the quality and point of view of the attending staffs and particularly of the directors of services is the important factor in determining the value of the internship. If and when the hospital staffs in general think of their responsibilities to the intern in the way the staffs of the better teaching hospitals do today, the problem will cease to exist. And again I would emphasize that this seems not to be an unattainable ideal because the first step in its achievement is a widespread interest on the part of the hospitals and that interest now exists.

Another problem that must be solved is that of the method of selecting interns. Particularly in large urban centers where there are many hospitals and a number of medical schools, the applicants for internships face real difficulties because of the multiple applications they must make. In certain cities cooperative plans have been worked out, like those of Philadelphia and Boston, to aid the candidates and the hospitals. During recent months our New York Committee on the Study of Hospital Internships and Residencies has been working on a somewhat similar plan for New York City. The problem there is even more complex, however, because of the larger number of hospitals and whether a workable plan can be developed remains to be seen.

Finally, the experience of the last two years shows that the wishes of the Association of American Medical Colleges will carry great weight among the hospitals. This is shown by the fact that 85 per cent of the hospitals to which Dr. Zapffe wrote requesting that they announce their internship appointments by a certain date replied they were willing to do so. I do not believe, however, that we can assume from the fact that 85 per cent of the hospitals indicated this willingness that 85 per cent or anywhere near that many actually preferred the date chosen. In a good many hospitals which I have visited the early date was accepted out of fear that if they did not move the date of appointments forward the other hospitals which did so would select all the best applicants. I believe it important and desirable that the Association has taken the lead in the establishment of a uniform date for intern selection but also it is extremely important that a careful study of the situation be made to determine that the date selected is the best not only for the medical colleges but also for prospective interns and the hospitals.

DR. R. C. CUNNINGHAM (Albany Medical College): Dr. Rappleye's presentation of the many problems which exist in the present system of appointing and training interns interests me greatly. I have long felt that the great gap which exists between the teaching and the non-teaching hospitals is one of the most difficult and unfortunate conditions in our entire system of medical training. Dr. Rappleye has pointed out many of the evolutionary stages which must be experienced in order to attain an eventual solution which could be considered as definitely satisfactory. To me this ideal would involve a redistribution of control in the intellectual phases of intern training so that most, or all, of it would be directly under the direction of the universities and the medical schools. This would abnormally change our definition of approved hospitals and would make the term "approved" synonymous with the term "teaching." While this would greatly increase the number of teaching hospitals, it would not necessarily demand any marked revision in medical curricula but rather an extension of their value and effect, to include the various postgraduate phases of medical education. This would be a radical departure from the present system and cannot, I fear, be accomplished quickly. Dr. Rappleye's suggestions, I feel, represent a definite beginning which adumbrates the concept outlined above and which points toward clearer illumination of medical education in the future.

At present, standardization of hospitals does not include any sharp outline of a teaching curriculum as such. All of our medical schools have well defined curricula for medical students, which are similar in all major essentials but not sufficiently standardized to eliminate that individuality which makes for stimulating teaching. The training given interns in our large group of approved hospitals is, however, much less definite and varies too widely for satisfactory evaluation. In too many cases, the house staff exists only to assist the doctors; in too many cases, no adequate preparation is made for their further instruction. Certain possibilities, short of complete supervision, which I consider the ideal to be sought for, seem to be worth considering.

First, the association of hospitals into groups with arrangements for "joint internships," that is, rotations that take the individual through several units in such an organized group. Second, having certain specified classes, conferences, lectures or other methods of instruction developed in each hospital of a group for the benefit of a cross section of the house staffs of all the hospitals in the group. Third, having a wider range of service combinations, such as Dr. Rappleye has so wisely proposed, which would give the intern more training in fewer subjects than he gets in the usual one year rotating service. Finally, much greater care on the part of the intern committees, deans and other advisors, exercised to obtain the proper placement of each individual student. In order to carry this out properly, a large amount of carefully compiled information concerning hospital facilities, purposes and programs must be at hand.

I hope, very much, that the committees and subcommittees which have been appointed to formulate better means of standardization of internships and residencies will concern themselves particularly with the problems involved in estimating the specific value which each hospital may have for different types of medical graduates in order that student advisors may find a better method of integrating the student's needs with the qualifications of the individual hospital.

DR. D. M. MORRILL (Superintendent Receiving Hospital, Detroit): If Dr. McEwen was somewhat overcome by the difficulties in discussing Dr. Rappleye's paper, what is the position of a mere administrator, after Dr. Rappleye has spoken, followed by three dean discussors? On the other hand, perhaps there is a thought or two that impressed the administrator somewhat more directly than the deans.

Throughout all of the programs that we have had to date in trying to develop and raise the standards of medical practice in hospitals, that of the American College of Surgeons, that of the Council on Medical Education, of the American Boards in the various specialties, we see an outside authority setting out certain more or less arbitrary

standards which the hospital is expected to reach. If the hospital does not reach those standards, there is a penalty.

I am reminded somewhat of the announcements in the press in the last forty-eight hours, in relation to the political campaign. We have lived for nearly ten years under a federal situation which has even in some instances undertaken to penalize those who did not follow the course of action which was considered proper in Washington. I saw the announcement, over this week-end, of the suggestion by one of the candidates, that instead of the divide and rule philosophy, he proposes the unite and serve philosophy, and it is from this viewpoint I wish to take up this responsibility which Dr. Rappleye states lies on the hospital.

In the sense that opportunity for constructive effort in human affairs involves responsibility—that is true, but in the sense that the entire responsibility lies on the hospital—does not quite follow. The universally recognized unit of medical education is the medical school. Obviously, you gentlemen, as deans, represent the dominant factor in the whole field of medical education, and in devising programs that extend beyond your sphere, there is this responsibility on you, which I am very glad to see is actively being approached through your regional committees, of extending assistance to the hospitals in meeting the problems of intern and graduate training. I think that a very great deal can be done in that direction.

First of all, all of our activities relate eventually to the care of the patient. The patient is not a greatly different individual, whether he be a private patient or a public patient. The great majority of human beings are interested in their own welfare and in what promises to improve their welfare. The proper viewpoint on the part of the physician who has been engaged by that patient can create in a private hospital, not directly associated with a medical school, a very large degree of willingness to have the private patient's problem discussed for professional instruction purposes. And how rapidly that might grow if, for example, in the State of Michigan, in correlation, I would say, with our postgraduate problem rather than with the program of study of approval of the Council, rather than tying it in with the inspection trip of the Council visitor, if in relation to the postgraduate program, when our medical schools are sending out teaching staff members into the various communities, an extra day or two might be allowed so that that teacher could spend that day or two with the staff and with the Board members, particularly, in showing them the thing that we all realize so fully, that any improvement of educational opportunity in their hospital results unavoidably in an improvement in the service to the patient and in better medical service throughout that community.

There is one other point in particular that I would like to emphasize in Dr. Rappleye's presentation, and that is that the internship serves as the foundation for either general practice or further graduate training. I want to emphasize the general practical angle. As I recall various published statistics, we do not require more than, perhaps, 10 per cent of the practitioners of medicine in the field of limited practice, assuming that they are competent and well prepared and well trained men. The requirement of internship for all graduates leaves this other 90 per cent facing some form of general practice. I should like very much to see the development of a national board for general practice, which would become a member of this Council of American Boards in the specialties and would represent that 90 per cent of your graduates who are ultimately to enter the field of general practice and who would assist the hospitals in bringing about the proper staff attitude regarding teaching, the proper board of trustee attitude regarding teaching, at both the intern and the graduate level in the residencies.

There is, too, a limited responsibility for those men in special practice, who have passed the American boards. They should stick to their last and should be made to feel the necessity of that throughout their training, and not encroach on the general practitioners. There is, again, the responsibility of the hospital to make a place for these men

who are trained in the specialties, so that they will not be faced with the necessity of encroaching on the general practitioner if they are to make a living after their five or six or eight years of graduate study and training.

I think that with the development of this cooperative spirit between the medical schools and the hospitals, there are very few institutions that are in any way approved or even registered where, by careful selection of the members of the staff who will be charged with the responsibility of training and with the assistance and cooperation of the schools in developing their programs, they cannot serve very effectively an intern training program.

I want, again, to add my voice to the previous speakers, in emphasizing what Dr. Rappleye so well emphasizes—the intangibles in the whole program. The development of these intangibles is certainly the development in the whole program, in which the medical schools can be very much more effective in assisting the hospitals than can the other bodies undertaking to standardize the quantitative material available.

Dr. Cyrus C. Sturgis (University of Michigan): It is very appropriate for this organization to consider the subject of internships as the training a physician receives during this period is equal in importance to that which is acquired as an undergraduate medical student. Perhaps it is of even more consequence, for probably the end result would be more satisfactory if an individual attended an inferior medical school and had an excellent internship than if the situation were reversed.

The internship years offer an unexcelled education opportunity for the Staff to teach and the intern to learn. It is then, for the first time, that supervised responsibility for the care of patients is delegated to the recently graduated physician, and learning is from first-hand practical experience. His mind is so impressionable at this time that it is possible for him to recall years afterward a great many of the minute details regarding the patients who were then seen. The brilliant diagnoses, the mistakes, and the general demeanor of the visiting physicians are likewise indelibly stamped on his memory. For these reasons, their conduct should be above reproach and it should be kept in mind constantly that the group of young interns under their direction will form a permanent impression of almost every act performed by them.

It should be emphasized to the staff of every hospital which offers internships, that in return for the routine work done by the intern, an adequate amount of supervised experience must be offered in exchange. In other words, the awarding of an internship and its acceptance, implies certain obligations on the part of both parties to the agreement. It is regrettable to acknowledge that in some instances, the hospital will exact thoughtlessly all possible service from the intern by requiring him to do a large amount of work without guidance, and make slight, if any effort to assist him educationally. When such a situation prevails, the intern frequently acquires very little but bad habits in the practice of medicine. Those responsible for the management of any hospital which provides internships must remember constantly that it is an educational institution, as well as one which cares for the sick, and that in some respects they play a role more important than the faculty of a medical school.

If a hospital admittedly provides inferior training, who is to be held accountable for such a situation? Perhaps there may be a combination of circumstances responsible but the blame can usually be placed definitely and justly on the shoulders of the chiefs of the various clinical departments, or in the case of the smaller hospitals, on the chief of the clinical staff. The superintendent cannot be completely absolved, however, because he is at least guilty of condoning a situation which is obviously undesirable. If the chief of staff is in the least puzzled about the reasons why his department is offering unsatisfactory internships, it is not difficult to enlighten him. It is because he fails to allot sufficient time for the supervision of the interns and often this is because he is devoting too many hours to his private practice. In some instances, he may be too lazy or indifferent and does not appreciate the singular educational opportunity which can be pro-

vided by the hospital when the service is conducted properly. Such a man may be a splendid physician or surgeon but as chief of a department which trains interns, he is cast in an inappropriate role.

Any group of intelligent physicians can outline various essentials which go to make up a desirable internship. This is not difficult. The common cause of inferior hospital training is the laxness in enforcing the program. The visiting staff may attribute this to lack of time, or some other apparently plausible circumstances. As previously stated, the real reason is usually a regrettable deficiency of interest on the part of a majority of the staff, including the chief.

It is not my intention to outline the features of a desirable internship but there are a few which I should like to emphasize, as follows: (1) ward visits each day at a regular set time; (2) a medical-roentgen ray conference for one hour each week; (3) a medical staff conference once a week; (4) a general inspection of the entire department once weekly by the chief of the department. At this time every patient on the service is seen at least once a week with the intern. In my own case, I have supervision of a ward of about 35 patients, and make teaching ward rounds on three mornings a week from 9:00 to 11:00. In addition, on Saturday morning at 8:15, I see every patient on my service with the intern and the instructor in charge of interns. As there are usually about 150 on the medical service, this requires about two hours. In most instances, it is not necessary to learn anything about the patient except the diagnosis. In some patients of special interest, a brief special examination is made and various matters relating to the diagnosis and treatment are discussed. During this visit, the ward order book, the laboratory and clinical records, and the number of deaths in proportion to the necropsies performed are noted.

Probably the greatest single change which could be made to improve internships in a hospital is to appoint a young man of two or three years experience to supervise the immediate work of the interns. The real function of such a resident is that he serves as a connecting link between the interns and the visiting staff. The proper man in such a position can be of the greatest help in making the internships of the highest quality.

Dr. J. E. McIntyre (Secretary, Michigan State Board of Registration in Medicine): I certainly appreciate Dr. McEwen's sympathy. I anticipated that, however, and I thought with all this array of talent, deans of the medical schools and the directors of hospitals represented, and Dr. Sturgis, professor of medicine, the milk would all be taken from the cocoanut before it came my turn. Therefore, I decided I had better stick to generalities.

I wish to comment upon one thing that Dr. Morrill said, concerning the internship as related to the general practitioner, because while you deans and teachers may be informed by each graduating class that perhaps forty to sixty per cent intend to be specialists, nevertheless, in the final analysis, the majority will end up by being general practitioners, and it seems to me, for the protection of the sick public, the emphasis should be placed upon the training of the intern, the first year particularly, with reference to making better doctors in the general practice of medicine, that they may render their community a real and valuable service.

However, after all the remarks that have been made since Dr. Rappleye's paper, as Dr. McEwen has said, it has been so ably covered there is very little to say. I have a few notes, a memorandum I have made upon the intern problem as related to medical licensure, which may be briefly discussed as follows:

Even in those states in which an internship is not legally required for licensure, by reason of possible later removal to a state where it is required, practically all medical graduates voluntarily serve at least twelve months of either a rotating, a mixed or a straight internship. As this service has become an essential part of medical education, the responsibility falls on all state boards of medical examination and licensure to be as well informed and familiar with the facilities of the hospitals approved for internship train-

ing as with those of the schools and colleges approved for undergraduate education. The information furnished by the Council on Medical Education and Hospitals of the American Medical Association is the most comprehensive and reliable available at the present time, but, as Dr. William Dock, of Stanford University Medical School states, "It is becoming increasingly evident that the responsibility and character of internship requirements rest with the state boards of licensure."

The reason for the above statement, we believe, is due to the fact that the state boards of licensure are the only bodies that have the official legal status to enforce the requirements.

The Michigan statute makes it mandatory that the Board fix and maintain a minimum requirement in both premedical and medical education. The twelve months rotating internship and the curriculum of subject material with which the hospitals and interns must comply is fixed by the Michigan Board as an educational requirement. The Michigan Board, as other state boards of examination and licensure, is not a teaching body, therefore, it welcomes and requests recommendations of the Deans of our medical schools.

As to the types of internship Dr. Rappleye mentions—we partly agree. The Michigan Board may, at its discretion, accept two or more years of a straight or mixed internship in lieu of its required twelve months of rotating service. The examination Blue Books reveal that the graduate who has a straight service writes an excellent book on the subject of his service, but knows very little of other fields of medicine; the applicant of the mixed service does a great deal better, but the applicant with a rotating service we believe, writes the best examination. The questions, of course, being designed for examination for the general practice of medicine.

It is not the duty or function of the state examining board to examine specialists. That is the function, and rightly so, of the various examining boards of the specialties. Nearly four-fifths of the physicians of the United States are in general practice, and the general practitioner is the backbone of medicine in the United States, no matter what group of specialists may decide otherwise. Therefore, he should be more than a traffic director to, or soliciting agent for the specialists. Of the numerous inquiries made to our state office, there are sixteen to one who request information as to how they can secure a well trained general practitioner as a family doctor, one on whom they can depend to make home calls and care for their families when ill. Therefore, in training interns we should consider the graduate who, for economic or other reasons, cannot afford two or more years of hospital training, hwever desirable we may agree. No general hospital of one hundred beds, we believe, has not the possibilities for good intern instruction, provided that the staff is interested enough to give that instruction—if the hospital and staff are furnished with a definite outline of training to be followed.

We agree with the principles of Doctor Rappleye's plan, and believe that it should be the duty, as well as the function, of the medical school to aid in formulating and fostering the internship training in hospitals approved for internship training in the respective states of such schools and hospitals. We believe that could best be done by a joint committee representing the medical schools, the staffs of the hospitals, and the state board of licensure, all being directly interested and responsible for internship training. Further, we believe that the Council on Medical Education and Hospitals of the American Medical Association should not be disturbed in its work of inspection and classification of medical schools and hospitals—that is, material equipment, teaching facilities, and so forth; and that the joint committee or commission on internship training be supplemental to and independent of the Council on Medical Education and Hospitals.

The opinions expressed in the above discussion of "Internship Training" are not given as an officer of the Federation of State Medical Boards of the United States, but from personal observations as Secretary and Executive Officer of the Michigan State Board of Registration in Medicine, and may not necessarily express the opinions of either body.

Graduate and Professional Education*

C. S. YOAKUM

Vice-President in Charge of Educational Investigations and Dean of the Horace H. Rackham School of Graduate Studies, University of Michigan
Ann Arbor, Michigan

A good many years ago, I was associated with a staff which studied the operations and directed the selection and training of some thirty thousand salesmen. We were somewhat enthusiastic over the possibility of describing a single type of individual who had the capacity to become a salesman in general. Our practical success, however, resulted only in establishing the falsity of the theory. We learned, nevertheless, that the qualities of men are numerous; that these vary from apparent absence of some to great presence of others in a single individual; that traits are in considerable measure lost, disclosed or enhanced in a particular sales environment.

Moreover, through this experience and supporting data from parallel studies, we learned another important fact. Sales tasks vary in the complexity of the factors involved. There are distinct levels that seem to rise one above another by the apparent cohesion of new factors. Each new factor creates a whole new set of relations which give rise to newer and higher levels of difficulty or complexity.

The example from the field of salesmanship is merely an illustration. Distinctly different qualities may be required in the physician, the specialist or the medical investigator. Also, as he moves forward in his profession, higher and higher levels of ability will be called into play.

Perhaps, I should also report that I have read and pondered the recent publication entitled "Graduate Medical Education."

Individual differences, levels of ability and levels of complexity in human tasks, and this small degree of commonality in our reading are offered as assumptions which should make it unnecessary to use qualifying clauses at each phase of the discussion.

Starting from these facts, I shall confine my statements hereafter to a brief characterization of graduate study as I see it. In doing so, there may appear a fundamental difference between this characterization and the general view expressed in the report on "Graduate Medical Education." This analysis should also bring out the differences between what, I believe, graduate education is, and preparation for a profession or continuing education in a profession.

First, graduate education demands a considerable degree of detachment from day to day reality. Since all of us are time-and-space-bound by routine duties, this demands temporary release for the student. Graduate study cannot be inserted into any round of daily tasks as one of them. Depending on work

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habits of the individual already formed, such study may occur as part of the total day's duties, may be shifted to one part of the week, or may be blocked off into months of concentration. But it must be detached.

Such detachment is not only temporal and spatial; it is also a mental separation from the current applications of knowledge and skill which constitute so much of our daily routine. The student should temporarily live in a world apart. If you play golf, ride, or read history intensely a glimpse of the needed pre-occupation of the student is vouchsafed; though even here you will recall that your past activities often intrude. Such detachment, involving the steady maintenance of a peculiar set or attitude of its own, results merely in drudgery, unless native curiosity remains fresh, and firm intellectual habits are formed.

Candidates for the master's degree exhibit this sense of drudgery all too frequently. They have either just come from the distractions and credits of undergraduate days, from concentration in professional education, from some intermediate professional or wage earning activity, or are presently engaged part-time in one of these. The attitudes they have formed stand in the way of acceptance of this doctrine of total immersion as the only road to salvation. The symptoms are legion; two may be mentioned. Such students add up scattered hours of class work from various sources. Many also ask whether their previous field or job or professional experience cannot be counted. They feel they have had valuable training, and believe that such an intimate emotion and sense of maturity should be credited. The notion that a diagnosis or an operation is graduate study should be eradicated both for the good of graduate work and for the welfare of patients.

Such symptoms usually disappear after the first year of actual graduate work, or when the possibilities of advanced work are finally understood. Other imbalances appear, but the symptoms of false intellectual growth seldom recur in one who has once sensed the character of this detachment or immersion.

Second, graduate work is done in a theoretical setting. Fortunately for educational progress, each graduate student must build his own theory, hypothesis or frame of reference. Acceptance ready-made of any pre-existing point of view will not enable him to create a fruitful project in the graduate school, nor to examine critically the problems he will be called on to solve. The beginner tends to ask the reasons for courses, for seminars, for journal clubs, and for cognate subjects. In a professional school, he must learn what is as it is given, or get out. A few may exhibit such originality and logical thought without a systematic curriculum; but the great majority of capable and promising future specialists will find properly organized courses and seminars a form of cultural and scientific heredity they cannot afford to neglect.

It is difficult to describe briefly the characteristics of a theoretical setting or the nature of a general hypothesis. These are the very things, however, which make geography a separate discipline from geology, economics from chemistry or biology. They make it difficult for a psychologist to live on equal terms with the doctor. Because of the nature of hypothesis *in vivo* (generalized attitude)

the physician often has a negative set in recognizing the existence of dentistry, preventive medicine, or public health as fields in which he, as a specialist, need display a warm interest.

Materials and relations, as they accumulate, finally emerge in a point of view. This point of view or approach may arise originally out of the apparent failure of a previous theory, out of a feeling that some essential factor has been neglected in earlier statements, or that the solution to neglected problems can be reached only by the development of a new field. Logical consistency characterizes the sequences where such a field attains stability. Again the roots of a new field, or in practice, a specialty, will usually be found in some prior field or fields of study.

Neglect of these considerations, while not serious to the specialist as a prospective practitioner, is, however, destructive of graduate study. Modern principles of the division of labor and increased willingness to accept the consultative function give opportunity for the rise of the specialist. The graduate student, properly supervised by a faculty of from five to forty, cannot allow himself these privileges.

In substance, the graduate student must, for a period sufficiently long, first detach himself from his personal environments; second, he must formulate his own theoretical setting for the field in which he is working. In sharp contrast to these conditions, the student working for a certificate of proficiency, or who is back temporarily to check up on the advances in his field, must immerse himself in the skills, the new hypotheses, the late results that are all about him in the hospital or medical school or other professional unit to which he attaches himself. In other words, he must bring all of his past experience into direct relation to the new data and the reality that surrounds him. He expects to return at once to his work to improve his engineering operations, his clinical procedure, his legal practice, or his administrative setup.

Recognition of these two important conditions enables us to apply certain secondary criteria to graduate work. Success will be measured by (1) the degree to which the student succeeds in constructing a scientific frame of reference; (2) by his ability to analyze critically previous work; (3) by the judgment exhibited in the selection of existing data—how far he needs to range and what he judges of value, and (4) his ability to organize these materials in order to exhibit the new approach.

A frequent event in discussing entrance to graduate work illustrates our first secondary criterion. It is particularly likely to appear in the concepts of one who has allowed professional activities to intervene. He comes back to graduate work with the thought of utilizing that experience for his program of study or his research problem. In engineering, our University recognizes this difficulty frankly and offers a special type of degree based on successful practice and a thesis covering some phase of that practice. The committees in charge of such work find a woeful lack of systematic thinking, of basic or theoretical understanding of the practical experience, and of the developments in the field. Though

more rigorous it is comparable to the certificate of proficiency sometimes given in certain medical specialties.

One such student wanted to use a law experience plus his experience as representative of a book company, as substitutes for the customary curriculum in education. Another had written short papers for medical journals and asked that these, without any systematic seminars or effort to coordinate them in a systematic paper, suffice for an advanced degree. A third offered a textbook. A fourth offered a congeries of courses which exhibited his shifting interests and the types of vocations he had enjoyed, but presented no systematic approach to anything. One entered the caveat that a monthly journal had accepted his rejected thesis.

As indicated earlier, such a student associates himself with a faculty of from five to forty persons. Committees of that faculty examine his abilities and accomplishments, and if he is rated as promising, after a year or two of such acquaintance, he is recommended as a candidate for an advanced degree. His further work is more immediately under the direction of a special committee; but supported by seminars and conferences with others of the department. The special committee reports on his work directly to the dean's office and later in a personal communication from each of them. One report on each student is from a staff member outside the faculty under which the student is working. I read an average of five such reports on each of the hundred odd students who each year successfully reach the standards of the most advanced degree we offer.

It is from the nature of these reports that I have gathered certain of the foregoing criteria of graduate work. We believe that a man who has satisfied these requirements is reasonably well prepared to be cautious, to be analytical, to organize his further work, and to stand shoulder to shoulder with others in his particular specialty; to broaden his outlook by practical experience, and, in some instances, to advance knowledge of his chosen field.

Ability and skill in analysis, our second criterion, show first in a thorough appreciation of other points of view. The critical faculty becomes of value only when prior theories are thoroughly understood. Within their set limits professional curricula in law, medicine, engineering, etc., are especially valuable in developing critical attitudes. They tend, however, to extrapolate that attitude beyond those limits and before full appreciation of other frames of reference is attained. I wish I could say that all graduate work succeeds in combining broad and thorough appreciation with constructive criticism. The limitations of our present mental and emotional equipment, and possibly our methods of instruction, prevent so broad a generalization. But I do hold that specialization should, at least, not create a false sense of the universality of one's critical ability. Attempts to formulate operational definitions are healthy exercises tending to correct this error.

Our third secondary criterion, judgment, must also be tested both within the framework of the facts of the specialty, in the broader field of all medicine, and desirably, in a few supporting disciplines. If I could surely tell you how to

discover this aptitude, I would urge that its absence be considered an important criterion of rejection in the selection of residents. I am reminded in consideration of this question of judgment of the experience of one of the early training schools for the feebleminded. The teachers were enthusiastic over their success in returning so many patients to to their home and community environments. Finally reports of many difficulties in readjustment began to come back. They found that the mental deficiencies had merely been concealed under the rote learning of manners and social behavior. These unfortunates had developed no powers of criticism nor of judgment. The feelings of the staff, after realization of the wide difference between training alone and training with insight, I leave to your imagination.

The ability to organize one's material in presentable scientific form needs little emphasis. Such organization of material measures successful use of the secondary criteria just enumerated. The ability to translate his findings into skills and a language his clients will appreciate are equally important to the professional man.

Naturally, the student looking forward to the cultivation of thoroughness in his specialty will expect adequate equipment; a staff that is imbued with the spirit of discovery and that will give him of their time and knowledge succinctly and expeditiously; and, if I have described his program properly, a time schedule that is not wholly in the immediate service of the hospital. These matters are the concern of those in authority. It may be years before a student becomes aware of deficiencies in his present opportunities for training and study. There is little need for me to retail the experiences of a university officer in his endeavor to have all the conditions for learning at the graduate level the most favorable possible. The report of the Committee on "Graduate Training for Surgery," as does likewise the report on "Graduate Medical Education," gives in nine divisions and subdivisions the core curriculum. It further suggests the necessity of records and examinations. The most hopeful observation, however, appears in the introductory remarks to the list of "Hospitals Approved." I quote:

> "Due consideration was given to the provision of adequate basic science study as included in the graduate training programs and the close correlation of such study with clinical services in the various hospital departments . . . In the rating of institutions, serious attention was given to the setting aside of definite time for the satisfactory pursuit of basic science study."

In the arts and sciences in a university where graduate work has been in existence for some time, the equipment in laboratories and libraries has been pointed toward that need. As far as possible, the senior staff is also selected largely for graduate teaching and research ability. These conditions are, in the main, also true of those basic sciences underlying medical science and practice.

In our hospitals, where the graduate student must find his clinical material and much of his instruction, the care of patients is of primary importance. Laboratories, equipment, and staff have their origin in the number of beds and the types of patients for which the hospitals were built. Ordinary hospital routine while manageable poses a difficult task for the graduate student's

schedule. The clinical staff working under these handicaps, possibly also busied with undergraduate medical instruction and postgraduate clinics, constitutes the "bottleneck" for the development of graduate instruction.

If you will now recall my two first assumptions; that occupations differ and men show equally wide individual differences in the qualities they possess, and further that real levels of ability exist among men, we may reach the conclusion that the science and practice of medicine offers opportunity for a great variety of talents. I should not, therefore, like to see all graduate work in medical fields pointed toward the specialties, nor to see the specialties themselves formulate rigid criteria. The older graduate disciplines are coming to a realization of this mistake of narrow and rigid boundaries of specialization. But tradition is difficult to break through. The several professions, of which yours is an important one, now seriously entering the graduate field, need not make the same mistake. There are essentials. Perhaps, I have stated some of them. But the men you want should be educated and developed, not merely trained.

The theory and procedures I have attempted to emphasize represent, in my judgment, the most serious omission in the recent report on "Graduate Medical Education." The earlier report of the New York Committee, in its discussion of "Residencies and Internships," calls attention to the lack of organization for training and comments on the absence of educational supervision. The volume on "Medical Education in the United States" unwittingly reveals the "vicious circle" which must be broken if one point of view is to profit by the failures and successes in other fields. In discussing the administrative relationship of medical instruction to the graduate school, on page 36, it says:

> "Whatever the administrative organization might be in any particular school, it would seem to be educationally and professionally unsound to entrust the responsibility for the development of students in medical fields to other than medically qualified teachers. The safeguarding of the medical point of view can be entrusted in the universities as they exist in this country only to those interested and competent in medical education. In view of these principles, sound programs for graduate medical education in universities can be developed only through the employment of the experience and technical knowledge of medical school faculty members and administrators."

H. C. Naffziger, in "The Metamorphosis of the Surgeon" argues that the patient will not become a "biologic unity" or "psychosomatic unit" until the specialist in the "basic sciences—physics, mathematics, chemistry, biology, and numerous others" is allowed to come in, or the student is allowed to explore deeply some one field.

Proficiency in the specialties, continuing education (so-called post-graduate education), graduate study, professional education and general education prior to specialization are definite objectives. Each must serve its own purposes. When these differences in purpose are more clearly understood, the methods of attainment can be investigated and evaluated. We are convinced, here at Michigan, that cross fertilization is helping us to understand these likenesses and differences. Safeguarding a point of view by entrusting it only to its friends is a form of democracy or of science that shades imperceptibly into authoritarianism or solipsism.

Industrial Hygiene Instruction for Medical Students*

DONALD E. CUMMINGS

Director, Division of Industrial Hygiene, University of Colorado School of Medicine
Denver, Colorado

Undergraduate medical schools should provide sufficient fundamental industrial hygiene instruction to satisfy the requirements of physicians entering general practice. A recent study by the Council on Industrial Health of the American Medical Association[1] revealed that more than one-half of the young physicians entering general practice participate in industrial medicine and surgery very promptly in their professional careers. In 1939, the National Industrial Conference Board[2] surveyed the medical and health programs in 301 establishments and showed that even in large plants with more than 5,000 workers, physicians were employed part time more frequently than full time; while in plants with less than 500 employees, members of the medical profession were invariably maintained only on a part time or on call basis. Since more than 60 per cent of the wage earners in manufacturing establishments are employed in plants of this category, it is apparent that the responsibility for their medical service rests most heavily on the general practitioner who devotes a portion of his time to industrial work.

A physician need not necessarily establish a specific affiliation with industry in order to utilize effectively a reasonable knowledge of industrial hygiene. The importance of occupation is frequently overlooked in medicine because members of the profession have not been trained to interpret their clinical observations in relation to the workers' environment. When a patient describes himself as a steel mill worker, the physician should invoke a vision not only of writhing white hot metal, but also of the many other potential hazards which surround this worker. Familiarity with the working conditions and risks in each of the principal pursuits assists a physician in recognizing occupational diseases and in winning the confidence of his patients. In a broad sense, most forms of medical practice are conducted among persons whose ailments may be caused or aggravated by their employment, and therefore, it appears prudent to apprise undergraduate medical students of the organized information on this subject.

There can be little doubt that industrial medicine will remain a specialty for those who devote all of their interest to this enterprise. Under the auspices of the American College of Surgeons, Newquist[3] recently prepared an excellent monograph dealing with industrial medical service and proposed suitable qualifications for an industrial physician. The full-time industrial physician or

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1. Council on Industrial Health, American Medical Association: Industrial Health, J.A.M.A., 114:573, 1940.
2. National Industrial Conference Board: Medical and Health Programs in Industry, 17, 1939.
3. Newquist, M. N.: Medical Service in Industry and Workmen's Compensation Laws, American College of Surgeons, 1938.

surgeon of tomorrow probably will acquire particular proficiency, not by practical experience, but by carefully planned instruction in recognized schools of preventive medicine and public health, supplemented by thorough training in approved industrial clinics and hospitals. Undergraduate medical school instruction should be laying the firm foundation on which these future structures must be erected.

Industrial hygiene embraces a broad field since it aspires to promote good health among all employed persons as well as to prevent and treat the specific occupational diseases. Bloomfield[4] describes industrial hygiene as adult public health. Certainly, pre-employment and routine physical examinations in industry are becoming important instruments for the promotion of public health. Through this medium the physical and mental fitness of large segments of the population may be ascertained and preserved. Industrial medical control procedures drill workmen in the techniques of personal hygiene and accident or sickness prevention, thus contributing to improved health throughout the community. The medical student of today should become familiar with the tools which will serve him so well in the workshop of tomorrow.

When industrial hygiene instruction is offered to undergraduates, it should take the form of an organized course under a single department and not that of a series of unrelated lectures in conjoint courses. The few arguments which can be opposed to this suggestion lack an appreciation of the growing importance of the subject, the special training required to teach it and the greater proficiency attained under its application.

The problem of incorporating industrial hygiene instruction in a crowded medical school curriculum is really only part of a larger challenge to offer adequate teaching in preventive medicine as a whole. Fitzgerald's[5] discussion of this subject is worthy of careful consideration. He states that suitable rearrangement rather than addition to the program of medical studies could and should be made. Medical schools which recognize preventive medicine as a distinct discipline should encounter little difficulty in presenting industrial hygiene as one of the functions of that department. Schools which do not accord preventive medicine or public health an important position in the undergraduate curriculum may establish a division of industrial hygiene within some other department, such as medicine. Another solution may be found in organizing industrial hygiene as a separate institute or department, as has been done at the University of Pittsburgh School of Medicine.

The Council on Industrial Health of the American Medical Association has tabulated both the required and elective courses in industrial hygiene offered by all of the approved four year medical colleges during 1939 and 1940. These tables reveal little or no uniformity of practice in undergraduate teaching but show variations ranging all the way from no organized instruction to thirty hours of didactic work and from one to ten hours spent in the laboratory or on

4. Bloomfield, J. J.: Development of Industrial Hygiene in the United States, Am. J. Public Health, 28:1388, 1938.
5. Fitzgerald, J. G.: Undergraduate Instruction in Preventive Medicine, J.A.M.A., 110:1321, 1938.

field trips. The University of Colorado School of Medicine offers thirty hours of lectures and clinics on industrial hygiene as a regular requirement during the junior year. A brief outline of the course follows:

INDUSTRIAL HYGIENE LECTURES AND DEMONSTRATIONS

SECTION 1

I. INDUSTRIAL HYGIENE
- History
- Evolution of Laws Governing Labor and Working Conditions
- Scope
- Gainfully employed Persons in the U. S.

II. ACCIDENTS
- Statistics
- Causes
- Methods of Prevention
- Correlation of Accident Proneness with Physical and Mental Defects
- Rehabilitation

III. FIRST AID TRAINING
- Methods Available to Industry
- Demonstration of American Red Cross Training

IV. SICK ABSENTEEISM
- Statistics
- Causes
- Methods of Prevention
- Correlation of Sick Proneness with Physical and Mental Defects
- Rehabilitation

V. MEDICAL HEALTH CONTROL
- Organization
- Functions
- Records
- Relationship of Physician to Employer and Employee

VI. SANITATION AND HOUSING
- Inadequate or Unsanitary Facilities
- Eradication of Vermin and Other Nuisances
- Standard Codes of Good Practice

VII. ILLUMINATION
- Harmful Effects of Inadequate and Intense Light
- Occupations with a Hazard
- Measurement of Light Intensity
- Prevention of Hazards
- Standard Codes of Good Practice

VIII. NOISE
- Harmful Effects
- Noisy Occupations
- Measurement of Sound Intensity
- Control of Sound
- Good Practice

IX. FATIGUE
- Physiology
- Recognition in the Workshop
- Prevention
- Rest Periods and Efficiency in Industry

X. NEUROSES
- Extent
- Probable Causes
- Types
- Methods of Prevention

SECTION 2

I. DANGEROUS ATMOSPHERES
- Limiting Air Conditions
- Causes of Asphyxia
- Occupations with a Potential Hazard
- Technique of Determinations
- Methods of Prevention or Protection

II. RESUSCITATION AND RESCUE TRAINING
- Methods Available to Industry
- Demonstration by U. S. Bureau of Mines

III. PRESSURE HAZARDS
- Effects of Abnormal Pressures
- Hazardous Occupations
- Methods of Control
- Discussion of Aviation Illness, Mountain Sickness, Ayerza's Disease and Caisson Workers' Disease

IV. TEMPERATURE AND HUMIDITY
- Physiology
- Hazardous Occupations
- Measurements
- Methods of Control
- The Comfort Zone
- Discussion of Heat Cramps, Heat Exhaustion and Freezing

V. PNEUMONIA
- Morbidity and Mortality Rates by Occupation
- Causes of Excessive Rates
- Methods of Prevention and Control

VI. THE DUSTY INDUSTRIES
- History
- Morbidity and Mortality Statistics
- Correlation of Occupational Exposure to Dusts with Mortality Statistics
- Dusty Industries with Favorable and Unfavorable Experience

VII. NON-INJURIOUS DUSTS AND PNEUMOCONIOSIS
- Characteristics of Non-injurious Dusts
- Physiology, Roentgenology and Pathology of Several Pneumoconioses
- Relationship of Pneumoconiosis to Tuberculosis

VIII. INJURIOUS DUSTS
- Physical and Chemical Properties
- Identification and Determination
- Control Procedures

IX. SILICOSIS AND ASBESTOSIS
- Occupational History
- Symptoms
- Physiology
- Correlation of Roentgenological and Pathological Observations
- Relationship to Tuberculosis

X. TUBERCULOSIS
- Morbidity and Mortality Rates by Occupation
- Causes of Excessive Rates
- Methods of Prevention and Control

SECTION 3

I. POISONS IN GENERAL
- Various Forms Encountered
- Detection and Determination
- Modes of Entering the Body
- Types of Injury
- Methods of Prevention and Protection

II. HARMFUL GASES
Occurrence
Maximum Allowable Concentrations
Physiological Effects
Discussion of Carbon Monoxide, Nitrous Oxides, Cyanogen, Methane, Hydrogen Sulphide, Chlorine, Ammonia

III. HARMFUL LIQUIDS
Occurrence
Toxicology
Physiological Effects
Discussion of Mineral Acids, Alkaline Fluids, Lubricants and Non-Volatile Solvents

IV. HAZARDOUS VOLATILE SOLVENTS
Occurrence
Toxicology
Physiological Effects
Discussion of Benzol, Chloroform, Ethylene and Petroleum Products

V. METALLIC POISONS
Occurrence
Toxicology
Physiological Effects
Discussion of Lead, Silver, Mercury, Manganese, Chrome and Zinc

VI. INFECTIONS AND DERMATOSES
Hazardous Occupations
Causes
Physiology
Discussion of Anthrax, Ankylostomiasis and Dermatitis Due to Alkalies, Dyes, Oils and Food Products
Methods of Prevention

VII. CARCINOGENIC SUBSTANCES
Types
Occurrence
Discussion of Lung Cancer in Schneeberg Miners, X-Ray Burns, Skin Cancer in Coal Tar Workers, Cancer of the Bladder in Dye Workers
Methods of Prevention

VIII. PROTECTIVE DEVICES
Various Forms Available to Industry
Application
Precautions
Discussion of Respirators, Helmets, Goggles, Clothing and Ointments

IX. WELDING HAZARDS
Industrial Welding Processes
Demonstration of Welding and Good Practice in Combatting the Various Potential Hazards Involved

X. MEDICO-LEGAL CONSIDERATIONS
Common Law Liabilities
Occupational Disease Legislation
Compensation
Insurance

An elective course offering more advanced instruction in industrial hygiene is also being developed at the University of Colorado School of Medicine. This course, embracing laboratory techniques, field inspections and seminars, will be offered for a three hour period once each week during one quarter of the senior year to students showing particular interest in the subject.

Medical schools not only should provide improved instruction in industrial hygiene, but also should stimulate hospitals to afford practical training methods

sufficiently flexible to meet the requirements of physicians expecting to engage in any of the various types of industrial medical service. It is hoped that several approved hospitals will soon add industrial medical departments to the services now included in their rotating internships. Residency in an approved industrial hospital or in an institution serving a predominantly industrial clientele would then offer an additional opportunity for the young physician to attain competency in industrial medicine.

As in other branches of medicine, industrial hygiene instruction benefits from an intimate contact with the practical problems encountered outside of the medical school environment. This objective may be attained by bringing experienced industrial hygienists to the classroom or by encouraging persons engaged in industrial hygiene teaching to participate in consulting arrangements with industry. At the University of Colorado fees from consulting work defray the expenses entailed in operating the division of industrial hygiene.

Finally, it should be emphasized that many talents must be united to achieve healthful working conditions. Physicians, engineers, chemists, nurses, plant executives and many others contribute prominently to any industrial health program, but no group predominates. Perhaps no branch of medicine requires such a high degree of cooperation with other professions. Industrial hygiene instruction in medical schools should therefore seek to impart an appreciation of the multitude of skills required to promote good health in industry and should inspire enthusiasm for such cooperative enterprises.

A Plan for the Protection of Medical Research*

GEORGE E. WAKERLIN
Professor and Head, Department of Physiology, College of Medicine
University of Illinois
Chicago

This audience is well aware of the continued efforts of a small but effective minority which seeks to hamper medical research and ultimately to abolish research involving the use of animals. The various organizations comprising this bloc maintain a steady barrage of magazine articles, radio talks, pamphlets and letters aimed at undermining the confidence of the public in medical research and particularly in animal experimentation.

Most institutions of medical research and related scientific organizations in the United States have largely ignored and even disdained this propaganda. In general, they have eschewed an organized counter educational program and have deemed even an active defense unwise except in the face of an important move by the opposition, such as the recently attempted enactment in California of the so-called Humane Pound Law, a medical research throttling measure.

The Bureau of Health Education of the American Medical Association at present constitutes the most important agency for instruction of the public relative to the benefits of medical research. Thus, a certain portion of the educational program of this Bureau is devoted specifically to the importance of animals in medical and biological investigation and testing.

The American College of Surgeons has made available an excellent motion picture entitled "That Man May Live," which portrays admirably the benefits resulting from animal experimentation, and has also published a digest of opinions by physicians and investigators on the value and importance of research on animals.

Science Service is of some value in this connection although ordinarily no particular attempt is made to point out the value and necessity of animals for many of the advances in medical knowledge which the Service so ably reports. Occasionally, when a particularly inaccurate or vicious antivivisection article has appeared, some research worker has individually assumed the responsibility of drafting a suitable reply for publication in the same or a related journal.

Both the American Medical Association and the Federation of American Societies for Experimental Biology include in their organizations a committee for the protection of medical research. These Committees have rendered very important service in the education of the laity and in preventing the passage of adverse legislation. However, both Committees have been motivated largely by a policy of active defense only in the event of overt attack, although they are

*Read at the Fifty-first Annual Meeting of the Association of American Medical Colleges, held in Ann Arbor, Michigan, October 28-30, 1940.

now drafting a model State Pound Law, requiring municipalities to surrender, on demand, unclaimed animals to properly qualified research and educational institutions. The American Association for the Advancement of Science, the largest scientific body in the country, has done little or nothing to protect the interests of medical and biological research. By and large, therefore, the propaganda of the antivivisectionists is organized and continuous, whereas our educational program is largely unorganized and desultory.

As a result of our laissez-faire attitude, the antivivisection bloc is making slow but consistent progress in the United States, at least in the Middle West and West. Certainly, no one acquainted with the present situation in Chicago doubts this. Unquestionably, medical science in Great Britain, forced to labor under the handicap of the Act of 1876 for more than 60 years, wishes profoundly that it had not underestimated the ingenuity, stealth and power of the antivivisection bloc in that country. There is only one way to meet this ever present threat to the security of medical research in the United States. We must institute a well planned, positive, nation wide campaign of lay education. Although the American public is better informed concerning recent advances in medical knowledge than ever before, it is largely unaware of the vital part which animal experimentation has played in effecting these advances. If the benefits of such a self evident blessing as democracy must be publicized, as is being done so widely in the United States today, the less obvious benefits accruing from the employment of animals in medical research must be brought more forcefully to the attention of the public.

This educational program should be undertaken by the Association of American Medical Colleges through the establishment of a Bureau of Education. After all, the institutions engaged in medical research have a real responsibility for its protection, and the Association includes a majority of the medical research institutions of the country. In the United States last year approximately $10,000,000 was expended for medical research by the member institutions of the Association, and yet a pittance was spent for the protection of the fundamental tenets of medical research. Moreover, the member institutions of the Association are vitally concerned with the quality of instruction afforded medical students. Even a partial realization of certain aims of the antivivisection group would decrease the pedagogical efficiency of the medical schools, particularly as regards the curriculum of the first two years. If the Association establishes the proposed Bureau of Education, other interested institutions and organizations would undoubtedly share in the support of the Bureau. Among these there come to mind the American Medical Association and other medical organizations, the American Association for the Advancement of Science and its affiliates, the Association of American Dental Schools, the American Dental Association, the American Association of Colleges of Pharmacy, the American Pharmaceutical Association, the American Chemical Society, various research institutes, and certain foundations.

As an alternative, the Bureau could be set up as an independent organization under the supervision of an advisory board composed of representatives of the

institutions contributing to its support. If the Bureau is established in this form, the responsibility for its inception should be accepted by the Association of American Medical Colleges.

The proposed Bureau should preferably be headed by a medical man with some research training and wide publicity experience. Adequate clerical and stenographic assistance must be supplied. The primary duty of the Director would be the organization and prosecution of a national program of lay education relative to the benefits of medical research inclusive of experimental and assay work on animals. This publicity should never be a frontal attack on antivivisection. Health problems and recent advances in medical and biological knowledge should be explained in popular terms and, incidentally, the benefits accruing from animal experimentation emphasized. Research workers in various parts of the country should be called on by the Director of the Bureau to prepare press releases, radio talks and magazine articles. The Bureau would be responsible for appropriate counter publicity wherever antivivisection propaganda appears. The Director would cooperate in every possible way with local groups to prevent the passage of adverse legislation. He would, as far as possible, coordinate his program with that of the Bureau of Health Education of the American Medical Association. He should impress research workers with the desirability of avoiding any word or deed which might be misconstrued by the opposition. This applies particularly to scientific publications. The Director should also seek to educate members of the medical and allied professions to the necessity of pointing out, when lecturing on health topics to lay audiences, the benefits derived from the use of animals in medical research and assay work.

For the first year the Bureau should operate on a budget of $15,000. This sum should be prorated among the member institutions of the Association of American Medical Colleges and other organizations willing to underwrite a share in the expense of the Bureau, in accordance with their yearly research budgets. Certainly, the yearly expenditure of $15,000 to protect an investment of many millions constitutes an unusually low insurance rate.

The establishment of this Bureau by the Association will render the forces seeking to hamper medical research ineffectual. After a decade or more of planned education, the words "vivisection" and "animal experimentation" will no longer have to be whispered, public opinion will actively approve of rather than tacitly tolerate, animal experimentation, and the enactment of legislation inimical to the best interests of medical research will become impossible.

At this time, therefore, I urge that the Association refer this question to the Executive Council. The recommendation of the committee appointed by the Council to consider the problem should then be acted on at the next regular meeting of the Association. The Association must accept its responsibility for the preservation of medical research.

The Place of the Residence Hall in Medical Education*

KARL LITZENBERG
Director of Residence Halls, University of Michigan
Ann Arbor, Michigan

As Director of Residence Halls in the University, I am very much pleased to have the opportunity of discussing the Michigan House Plan, which was formulated during the past year and a half in Ann Arbor, in the presence of those who are attending the fifty-first annual meeting of the Association of American Medical Colleges. Since I have assumed that the medical educators here present would be more interested in the special phases of the House Plan which are related to medical education, than in its undergraduate phases, I will describe the Plan in general, and then discuss more specifically—and I hope in terms of promise and prophecy which time will fullfill—the place of the Victor C. Vaughan House for medical students, in the University of Michigan.

I am well aware of the fact that laymen make constant and, fortunately, futile attempts to tell members of the medical profession how to run their business; and I also know the horrid contempt which the term "layman" can exude in the medical inflection when it is properly colored with scientific emotion. Have been sired, fathered and raised by a gentleman who was for more than forty years a practicing surgeon and medical educator, I shall not delude myself into pretending that I am in any way discussing professional medical education. If the Victor C. Vaughan House can contribute to furthering the aims of the University of Michigan Medical School, it will contribute not as a function or department of that School, but rather as an adjunct to it: An adjunct which will have to do with the physical, recreational and cultural welfare of medical students, not with anatomy or the clinical curriculum.

I should say, also, at the outset that although the Victor C. Vaughan House enjoyed a very happy success in its first year of operation, it is, after all, only one year old, and, therefore, our hopes for it have been faintly suggested in realization rather than completely stated in achievement.

The University of Michigan acquired, within very recent months, a Residence Halls system which is physically tremendous. There are certain colleges and universities in the country wherein special disciplines prevail, such as the religious, at Notre Dame, or the military, at Louisiana State—which house all or almost all of their students. This, of course, is palpably impossible, and doubtless is undesirable in a state institution as large as the University of Michigan, where nearly 12,000 students are in attendance. But we are becoming rather proud of the fact that in our 22 Halls and Houses for men and women, operated by the Board of Governors of Residence Halls under the supervision of the Director of Residence Halls, and in our other endowed units which are

*Read at the Fifty-first Annual Meeting of the Association of American Medical Colleges, held in Ann Arbor, Michigan, October 28-30, 1940.

operated by separate boards, or college authorities, we house, under University auspices and in University owned buildings, almost 3,400 men and women. The Halls and Houses operated by the Board of Governors of Residence Halls accommodate approximately 2,600 of the 3,400 mentioned.

The building program which created almost overnight this vast physical plant for Residence Halls made it necessary that a definite but flexible House Plan be put into effect in order to produce a unity of purpose amidst a heterogeneity of interests. It also became obvious that an administrative unit or division in the University should be established as a "Board of Control," with a chief administrative officer acting as the Board's executive, in order that so imposing a physical plant might be employed for educational purposes in addition to providing the physical conveniences of excellent housing.

The Board of Governors of Residence Halls is composed of nine members: four members ex-officio, who are administrative officers in the University—two of whom are also members of the teaching faculty—and five appointed members, all of whom are members of the teaching faculty. The Executive Officer of the Board, the Director of Residence Halls, is a member of the faculty as well, and thus supervision of the Residence Halls is exactly where it should be: under the direction of those whose chief interest coincides with the primary function of the University—to give higher education to those who come in its quest.

When the President of the University announced in the *University Record* that the Regents of the University had seen fit to provide for the appointment of a Board of Governors and a Director of Residence Halls, he summarized the purposes of the Michigan House Plan as follows:

> "The Board of Regents has insisted . . . that the Houses should be more than mere rooming and boarding houses. They recognize that, broadly conceived, education should include both formal instruction in the business of living, and informal training in the enrichment of personality. A Michigan House Plan has, consequently, been developed which will give the student experience in communal living and assistance in expanding his education into those areas which must be cultivated if he is to become a citizen of the world."

In interpreting the President's statement, and in attempting to convert it into a plan of action for the Residence Halls staff, I professed, in our general staff meetings last spring, my firm belief that the Residence Halls should offer to students not merely a complete and elaborate physical plant, but rather a physical entity which would embrace a large variety of opportunities for self-development; opportunities which are not readily available to college students under the hit or miss private dwelling system which has been in vogue through necessity in most of our large colleges and universities during the whole course of American higher education:

> "Opportunities for reading good books and magazines; opportunities for listening to the world's best music; opportunities to confer, to counsel, and to converse with staff members who are socially poised, intellectually alert, and culturally informed; opportunities to meet people, to live with people, to understand people in a friendly manner, and to deal with them on a basis of dignified informality; opportunities for growing up in the whole and reasonable sense; these are the things which I find implied in the definition of the Michigan House Plan."

The advantages of such a plan are obvious enough—at least in terms of ideals: group associations themselves are universally regarded as important when men and women are gathered together in homage to the natural gregariousness of human beings. Thus associated, they contribute to each other from their experiences; they enjoy the privilege of discussion, of recreation, of using a large amount of excellent physical equipment, of living with members of their own faculty—privileges which they would not, for the most part, be able to enjoy if they were scattered about the town. The disadvantages are likewise obvious, though they are outweighed—and most Residence Halls administrators believe they are overwhelmed—by the possibilities and potentialities which are inherent in planned (though not regimented) extra-classroom student life. Gathering individuals together increases the possibilities for organized boisterousness; for organized drinking and gambling; and for other disturbances which are not in harmony with good study habits. These disadvantages, most of which come under the head of disciplinary problems, are more serious in undergraduate Houses than they are in Houses for specialized groups such as the Lawyers Club of the University of Michigan, the Hinsdale House for graduate and professional students, or the Victor C. Vaughan House for medical students. The age and maturity of these specialized groups of students, as well as the keen competition for academic success which is traditional in graduate and professional education, have made the disciplinary problem in these Houses—and, I might say, particularly in the Vaughan House—an almost negligible deterrent to the advancement of the House Plan.

Many persons here present will, perhaps, at this point wish to raise a question: What does life under the terms of your Michigan House Plan contribute to college education which is not contributed by the fraternity? I do not propose to argue this question here, but perhaps a statement of fact or two with regard to the fraternity situation in Ann Arbor may make argument unnecessary, if not irrelevant. There are approximately 8,300 male students in the University of Michigan, and fewer than 2,000 of them are members of fraternities—professional or academic. In relation to the Victor C. Vaughan House and medical fraternities in particular—there is nothing which prevents a medical freshman from enjoying the benefits of the Michigan House Plan in the Vaughan House for the first year of his professional education, and then spending the rest of his life as a medical student in the fraternity of his choice. In fact, that is exactly what happened in the case of the majority of last year's Vaughan House residents. Certainly, the benefits to be derived from orientation into the University, or into a professional school, through residence in a House similar to the Vaughan House are not inconsiderable; and, certainly, the man who does not wish to join a fraternity has rights in the matter. In the light of these circumstances, the fraternity argument, it seems to me, is best forgotten.

One of the features of the Michigan House Plan which we consider to be most salutary is that the masters of all our Houses are members of the faculty. In the medical unit, the Resident Adviser, or Master, is a member of the department of anatomy, and he is assisted in his House duties by three members of

other departments, all of whom are actively engaged in class or laboratory instruction in the Medical School. The purpose of such an arrangement is to bring residents into extra-classroom contact with teachers as early as possible in their years of medical training, and to provide personnel counseling and competent advice on every subject from study habits to complex problems of professional study by those most competent to give it, namely: men who have themselves been professionally trained and who are participating in the professional training of others.

Many university officials feel that personnel counseling and personnel administration in an institution of higher learning should be carried on by men and women who are scholars and teachers, first—counselors and administrators, second; and certainly this is true in residence halls. It happens that administration, in general, in the University of Michigan is faculty controlled, and, with a few exceptions, where the nature of the administrative work does not permit teaching, every dean, director and head of a college, division or department of the University of Michigan, is an active member of the teaching faculty. We are justly proud of the fact that our President conducts graduate work in the field of herpetology; that our Dean of Students teaches a class in mechanical engineering every morning at eight; that the Dean of our Graduate School is a lecturer in sociology; and that our Men's Residence Halls administration, from the Board of Governors through the Director down to the staff assistants in undergraduate Houses, is made up of men engaged actively in the field of education as classroom instructors, as laboratory instructors, or as graduate students in training.

We require in our House Masters, or Resident Advisers as we call them, first, a recommendation from their departmental chairman or dean, for we wish to be certain of their complete and absolute academic respectability. From such men as are recommended to us on this basis—and I may add that the deans, directors and departmental chairmen of our teaching units have given us complete cooperation and assistance in selecting men from their ranks for our staff—we choose those who are interested in students as human beings, who, perhaps, have had some experience outside the University which further qualifies them in the handling of men; who are understanding, tactful and patient; and who can be strict, yet just, disciplinarians when occasion demands; who believe that the acquisition of general culture, the development of dignified yet not overformal poise, the cultivation of non-professional aptitudes, talents and special interests, are not inimical to the purposes of education in general, and—in the Medical School—to the purposes of medical education in particular. The success of those members of the medical faculty chosen to guide the destinies of the House Plan in the Victor C. Vaughan House for last year and for the present year indicates that we shall have no difficulty in fulfilling our two general requirements for major staff appointments in the Men's Residence Halls: academic respectability and a general interest in broad experience in student life.

We are attempting to stimulate student government, and I should say that ideally described, the function of the personnel staff in any of our Houses—and

especially in the graduate and professional Houses—is to suggest, to guide, and to lead without directing, or supervising. Out of cooperation between staff and student officers will hopefully come a limited yet useful and catholic extra-classroom program in the Victor C. Vaughan House which will be generally enriching; and which will support medical education itself by providing opportunities for association and discussion under favorable auspices. Hopefully, distinguished scientists, from here and elsewhere, will continue to be brought into contact with the residents informally; and hopefully, also, we can acquire library facilities which should be available in the living quarters of professional students; and which will enlarge areas of educational experience which medical education, by the very nature of its subject matter, and because of the limitations of time, cannot possibly touch. The question may well be asked: Where does a medical student get time for all this? It is not a question of time, but of exposure; a question of creating a whole environment in which leisure time, no matter how limited it may be, will be spent pleasantly, profitably and fruitfully.

This purpose—this thing which we call the Michigan House Plan—is appropriate to and in consonance with certain general trends in medical education in recent years. The increased interest on the part of medical educators in non-scientific subjects: in the study of language and literature, social science and the general fields of the humanities; the values, in short, reflected in the seven and eight-year medical courses, in which three or four years of the embryo doctor's student life are spent in preparing him for the life he must live when he is not at the bedside, not in the operating room, not in the laboratory. Huxley's interest in music, Joseph Collins' high regard for the art of literature, our own late Dr. Warthin's constant insistence on the need for introducing moral philosophy into scientific education, and our own late Dr. Lombard's passion for art, present almost classical proof of the fact that the rationally trained scientific mind is in no wise limited, but rather enlarged, by its contacts with the irrelevant but soul satisfying heritage of humane culture.

These contacts, in a Residence Hall for medical students, may be made through a device as simple as subscriptions for the House library to several of the best literary magazines; they may be made through providing an adequate collection of recorded music; they may be made through bringing into the House interesting persons who are sympathetic interpreters of specialized knowledge in fields remote from basic science or clinical practice; they may be made through the building of a House library which includes not only the bound volumes of the *Journal of the American Medical Association,* histories, encyclopedias and general medical texts, but also a reasonably large number of books which deal with those aspects of humanity which are not laid bare in an engineer's testing laboratory, in a court of law, or in an operating room. They may be made, also, by the exchange of ideas and the intercourse of personalities which must inevitably exist when 130-odd young men of heterogeneous background but of homogeneous purpose live together. Such contacts may be made also by bringing into the House the faculty man who has divested himself of his operating gown, who has set down his pointer, or abandoned his microscope, and who is,

hence, able to give of himself, in a way which the classroom does not entirely permit, some of the accrued and rich experience which is his.

In the Vaughan House, faculty-student relations are furthered in two ways: First, by frequently inviting faculty men for dinner, and, secondly, by occasional informal talks given by some member of the faculty. Faculty guests are usually invited by the students themselves and also by the faculty members resident in the House. Last year, all faculty members who taught first year men, as well as many others, came to dinner at least once. The faculty talks were given by Doctors Furstenberg, Novy, Coller, and Weller of the Medical School, and by Dr. Slosson and Dr. Maier of the College of Literature, Science and the Arts.

These are some of the things which we mean and which we imply when we say that we have a Michigan House Plan. As I have already remarked, this House Plan is in its infancy; its adulthood lies still largely in the future. But if the attitude of the residents of the Victor C. Vaughan House during the past year is a harbinger of good and better things to come; and if the reactions of the Vaughan staff and the Dean of the Medical School may be said to constitute dependable criteria, the hopeful mind with which we contemplate the future of the Michigan House Plan in the Vaughan House may be said to be conditioned by something more than personal optimism.

Foci of Physiological Research in America

W. B. YOUMANS

Assistant Professor of Physiology, University of Oregon Medical School
Portland, Oregon

An analysis of the sources of the abstracts appearing in the Proceedings of the American Physiological Society over a period of years affords a basis, imperfect in some respects, for determining where physiological research is being attempted in the United States and Canada. The following analysis covers the Memphis, Baltimore, Toronto and New Orleans meetings. These four cities are situated so that a given institution in the East or Middle West is not placed at a significant geographical disadvantage for the four year period.

Among the imperfections in an analysis of this type are: (1) it takes into consideration numbers only; (2) not all physiological research finds an outlet through the Physiological Society; and (3) some of the abstracts in the Proceedings represent work in an incomplete stage, some of which is never brought to completion. Nevertheless, it is felt that useful impressions may be obtained by observation of the following facts.

The Proceedings of the American Physiological Society for the four year period contained a total of 1,510 abstracts from 136 institutions. The number of abstracts contributed and the number of institutions represented each year are as follows:

		No. of abstracts	No. of Institutions
Memphis	1937	312	72
Baltimore	1938	395	85
Toronto	1939	425	92
New Orleans	1940	378	95
Total		1,510	136

Of the 136 institutions represented at least once during the four years, only 45 institutions were represented each of the four years. Some of the institutions were represented by several different departments so that approximately 292 separate departments or laboratories contributed one or more abstracts during the four year period.

An analysis of the total number of abstracts submitted by each institution for the four year period shows that:

4 institutions contributed from 60 to 72 abstracts each.
2 institutions contributed from 50 to 59 abstracts each.
5 institutions contributed from 40 to 49 abstracts each.
7 institutions contributed from 30 to 39 abstracts each.
5 institutions contributed from 20 to 29 abstracts each.
17 institutions contributed from 10 to 19 abstracts each.
28 institutions contributed from 5 to 9 abstracts each.
68 institutions contributed from 1 to 4 abstracts each.

Of the more prolific institutions, the 11 which contributed 40 or more abstracts contributed a total of 580; the 18 which contributed 30 or more abstracts contributed a total 807; the 23 which contributed 20 or more abstracts contributed a total 936. The 11 top ranking institutions contributed more abstracts than 112 institutions included in the last three groups of the preceding paragraph.

The 23 top ranking institutions and the total number of abstracts contributed by each during the four year period are:

1. Johns Hopkins University 72
2. Northwestern University 65
3. University of Chicago 65
4. Yale University 63
5. University of Pennsylvania 55
6. University of Wisconsin 50
7. Columbia University 44
8. Harvard University 44
9. University of Michigan 43
10. University of Rochester 40
11. Michael Reese Hospital 39
12. Cornell University Medical College (New York) 36
13. Mayo Foundation and Mayo Clinic 34
14. McGill University 33
15. Western Reserve University 33
16. New York University College of Medicine 32
17. University of Illinois College of Medicine 31
18. Washington University 30
19. University of Minnesota 27
20. University of Georgia 27
21. Hynson, Westcott and Dunning 26
22. University of Toronto 25
23. University of Alabama 22

Total 936

When the contributions from these twenty-three institutions are analyzed with regard to contributions by individual departments, the most active departments and the number of abstracts contributed by each are as follows:

Northwestern University, Department of Physiology and Pharmacology 57
University of Wisconsin, Department of Physiology 43
Yale University, Laboratory of Physiology (and Neurophysiology) 40
University of Chicago, Department of Physiology 36
University of Michigan, Department of Physiology 33

The departments of physiology of Harvard, Cornell (New York), Western Reserve and the University of Illinois each contributed from 22 to 24 titles. A similar number was contributed by the Cardiovascular Laboratory of Michael Reese Hospital and by the Johnson Foundation of the University of Pennsylvania.

Fifty or more abstracts came from each of the following cities:

Cities	No. of abstracts	Cities	No. of abstracts
Chicago	225	New Haven	64
New York	153	Boston	54
Baltimore	110	Madison	50
Philadelphia	82	Total	738

The high total for the city of Chicago is the result of the location there of four of the eighteen institutions most active in physiological research. Almost one-half of the abstracts originated in these seven cities.

Abstracts came from thirty-three states, the District of Columbia, Canada and Mexico, but 74.6 per cent of the abstracts came from the following eleven states:

State	No. of Abstracts	State	No. of Abstracts
Illinois	248	Connecticut	64
New York	245	Minnesota	61
Maryland	111	Ohio	62
Pennsylvania	89	Missouri	54
Massachusetts	76	Wisconsin	50
Michigan	69		
		Total	1,129

The remaining states represented and the number of abstracts originating from each are:

State	No. of Abstracts	State	No. of Abstracts
Alabama	22	North Carolina	7
California	30	North Dakota	1
Colorado	7	Oklahoma	7
District of Columbia	10	Oregon	8
Georgia	32	South Carolina	1
Indiana	14	South Dakota	1
Iowa	19	Tennessee	21
Kansas	7	Texas	10
Kentucky	8	Vermont	5
Louisiana	20	Virginia	26
Nebraska	12	West Virginia	6
New Jersey	11	Canada	62

Seventy of the seventy-seven medical schools were represented at least once during the four year period.

SUMMARY: As indicated by the sources of abstracts appearing in the Proceedings of the American Physiological Society for the years from 1937 to 1940 inclusive, physiological research is being attempted in 136 institutions located in seventy-eight cities in thirty-three states, the District of Columbia, Canada and Mexico. However, 75 per cent of the abstracts came from eleven eastern and middle western states; 48 per cent came from seven cities; 15 per cent came from Chicago, the top ranking city; 62 per cent came from 23 institutions; and 23 per cent came from eleven departments. It is evident that a very large proportion of the abstracts came directly from twelve university departments or from persons now located elsewhere but trained in one of these departments.

The Teaching of Prescription Writing in Medical Schools

C. Jelleff Carr

Department of Pharmacology, University of Maryland School of Medicine
Baltimore, Maryland

The problem of adequate instruction in the art of prescription writing has been regarded by many individuals as a growing responsibility in the modern medical educational program. It is well recognized that the young physician emerging from an internship and entering on a professional career as a practitioner generally finds that he is poorly prepared to write rational prescriptions. The keystone in his arch of therapeutic endeavor crumbles because of this lack of instruction.

A few years ago we undertook a survey of this problem in United States and Canadian medical schools. A questionaire was sent to departments of pharmacology and therapeutics in an effort to learn how much time was devoted to the teaching of prescription writing and how various schools attacked the problem. The character and scope of training in prescription writing which was revealed by our survey coincided with the opinions expressed by the Council on Medical Education and Hospitals of the American Medical Association as reported in their recent volume on Medical Education in the United States[1]. The committee pointed out that only 75 per cent of the departments of pharmacology gave some formal instruction in prescription writing. It is to be inferred from this that 25 per cent of American medical schools are lacking in instruction in the fundamentals of prescription writing.

PLAN OF STUDY

In the survey herein reported 79 per cent of the eighty-seven medical schools of the United States and Canada responded to the questionaire. The first problem dealt with the number of hours devoted to specific instruction in prescription writing. We may assume that the majority of those schools that did not

TABLE 1—Number of Hours Devoted to Specific Instruction in Prescription Writing and Percentage of the Course in Pharmacology or Therapeutics

Hours devoted to Prescription Writing	No. of Schools	Per cent of Total Course	No. of Schools
5 hours or less	13	10 per cent or less	36
6 to 20 hours	35	11 to 30 per cent	16
21 to 48 hours	14	31 to 50 per cent	3
No comment	4	No comment	11

reply do not have any instruction in prescription writing. The average department reported sixteen hours in the second year; several schools were as low as two hours and three schools as high as forty-eight hours of instruction. These figures represent 8 per cent of the total course in pharmacology for the average group and 50 per cent of the course for the high group in two schools (Table 1).

1. Medical Education in the United States: 1934-1939, J.A.M.A. 114:114, 143, 150, 1940.

THE SYSTEM OF WEIGHTS AND MEASURES

The second question concerned teaching the systems of weights and measures for prescription writing. All of the schools reporting taught the use of the metric system. Ninety per cent taught the use of the apothecaries' system and 10 per cent disregarded the use of this system entirely. This indicates that most departments taught the use of both systems. Many department heads decried the necessity of teaching both systems and expressed their preference for the metric system but pointed out that convention makes it necessary to consider the apothecaries' units.

The more important question of which system of weights and measures the teachers encouraged the student to use elicited a very interesting response. Eighty-five per cent indicated that they favored the use of the metric system alone, 19 per cent encouraged the use of the apothecaries' system and the metric system for some prescriptions, and only 6 per cent favored the strict use of the apothecaries' system. The survey shows clearly that we are confronted by the anomalous situation of a group of teachers and students forced to deal with the equivalents of an archaic system, that is generally regarded as being valueless, because convention dictates its use. If our schools could reach a common understanding and teach only the metric system much better instruction could be given in the time available.

LATIN AND ENGLISH IN PRESCRIPTIONS

Another question was concerned with the teaching of Latin titles and directions in prescriptions as contrasted with English. Fourteen per cent taught only the use of full Latin titles (or abbreviations) and directions in prescriptions. Forty-five per cent were teaching the use of a combination of Latin and English, that is, Latin titles or abbreviations and English directions in the signature. Again one is forced to observe that the teaching of two languages doubles the time necessary for the student to learn and simultaneously adds to the student's confusion.

TYPES OF INSTRUCTION

In the belief that the actual writing of prescriptions by students would facilitate their mastery of the subject, we have always required our students to write a large number of prescriptions during the course in pharmacology. In the survey we inquired about this phase of teaching. Ninety per cent of the departments of pharmacology require their students to write prescriptions; 35 per cent write prescriptions in the therapeutics departments also. Only six schools of the group replying do not write any prescriptions at all in pharmacology. The average number of prescriptions written by each student was fifty, a number which appears surprisingly large. It would seem that this estimate is too high as some schools reported as many as 500 prescriptions written by each student. A value which suggests quantity rather than rational therapeutics is the chief aim.

Most schools have adopted the plan of requiring students to write from two to five prescriptions each day during a lecture period. These are graded and returned. Some departments divide classes into small groups for discussion of

prescription problems. A few departments have separate final examinations in prescription writing. The conference method including drill work seems to be the favored plan in most departments; however, many report that students will find it difficult to be at ease in prescription writing work.

A surprisingly large number of schools report that prescription writing instruction is carried over into the third year in therapeutics, and in the fourth year in the department of medicine, a plan that appears to be ideal.

DISCUSSION

The Council on Medical Education and Hospitals of the American Medical Association calls for greater support from Schools of Medicine "to promote research and to improve teaching, especially with regard to the administration of drugs," for departments of pharmacology. The need is evident, but the method of improvement is wanting. It seems quite clear that some agreement should be reached by all departments of pharmacology on the following points:

1. How much time is required to teach prescription writing adequately to second year medical students?

2. Inasmuch as the amount of time available for all types of instruction in the medical curriculum is severely limited, should a policy of intensive instruction in the use of the metric system and English in prescription writing be generally adopted?

3. The actual writing of prescriptions throughout courses in pharmacology, therapeutics and medicine should be adopted universally.

4. The teaching of prescription writing in the course of therapeutics in the third year and subsequent experience in the last year of medical teaching should be planned carefully by each school.

Only when these questions are answered properly and applied can the schools be expected to meet the requirements of the Committee.

SUMMARY

The need for proper instruction with regard to the administration of drugs is imperative. A survey of the medical schools departments of pharmacology reveals the chaotic condition of teaching of prescription writing and the desire on the part of instructors and students for simplification and standardization. A plan has been proposed for a constructive approach at modernization embodying as its chief features the teaching of only the metric system and the use of pure English in prescription writing.

Teaching of Statistical Analysis in Medical Schools

FRANK L. ROBERTS

Professor of Preventive Medicine, University of Tennessee College of Medicine
Memphis, Tennessee

The arguments of this paper are, (1) that courses in statistical analysis should be taught in all of our medical schools and (2) that such courses can be fitted into or added to present curricula without too much difficulty. These arguments are based on the premise that medicine is a science. If the premise be true the arguments are valid.

Science is defined by Webster as a branch of study concerned with observation and classification of facts. Karl Pearson in "The Grammar of Science" states, "The classification of facts, the recognition of their sequence and relative significance is the function of science." Surely, medicine meets these criteria of a science.

Medicine is becoming quantitative in its approach to its problems, that is, it is becoming increasingly scientific. Each year sees added to the physician's armamentarium increasing numbers of quantitative procedures and instruments of precision. Hundreds of new drugs and other therapeutic measures are being introduced, and it is important that these procedures be evaluated accurately.

The physician is dealing constantly with differences in percentages and ratios. He is told that a certain per cent of recoveries or improvements resulted from some procedure or other and that from a different procedure there was another percentage of recoveries or improvements. The scientific method requires the recognition of the sequence and relative significance of data presented. How is the physician to recognize significance of various groups of data unless he knows something about the variation that is inherent in the sampling process itself?

Every literate layman knows that all men are not of the same height, that ten tosses of a coin will not always result in exactly five heads and five tails. All physicians know that all people do not have the same blood pressure, they know that even though the case fatality rate from typhoid fever is eight per cent they will not always lose exactly four out of every fifty cases. In short, they know that sampling variation exists, but most of them call it chance and do not know how to measure it with any degree of accuracy. Since physicians are nearly always dealing with samples of the population they should know something about the measurement of sampling variation. It is no argument to say that this matter should be left to professional statisticians. The medical student should be taught to do his own thinking, to recognize the sequence and relative significance of data presented to him.

There appear each year in the medical journals many articles in which the results claimed cannot by substantiated by the data presented. Many papers appear that would be greatly improved by simple statistical analysis. There is an increasing number of papers appearing in which the data have received excel-

lent analysis. More and more such statements as "These differences are statistically significant," "The coefficient of association is .53," are appearing in the medical literature. At least the graduate of a modern medical school should be familiar with the terminology of medical papers.

Statistical analysis is an extremely useful tool for aiding the student to recognize the sequence and relative significance of certain data. It is not the only tool, nor is it the most important, but it is an essential tool. There is nothing magical about it—it cannot improve the accuracy of the original data; it cannot serve as a substitute for careful and accurate observation. It can, however, put the data in a form that makes them easier to grasp and that will often save the writer of a medical paper from making more or less ridiculous statements. The method will make the student's thinking more logical and will make him more critical in his reading. Any student that can add, multiply, divide and find square roots will have no difficulty in an elementary course in statistics.

Some of our medical schools have recognized the need for courses in medical statistics. A letter addressed to the 67 medical schools in the United States asked for the following information: (1) Does your school have a required course in statistical analysis for undergraduates? (2) If so, how many hours a week are given in lectures and laboratory work? Replies were received from 63 of the 67 schools. The data are tabulated below:

Course in Statistics	Schools	
	Number	Per cent
No course	45	71.4
Elective	5	7.9
Required		
Less than 10 hours	7	11.1
10 to 18 hours	2	3.2
18 hours or more	4	6.4
Total	63	100.0

In the 18 schools with elective or required courses, the courses are given to first year students in 4, to second year students in 2, to the third year students in 8, to senior students in 1, to premedical students in 1. Two of the schools did not designate the year in which the courses were offered. In a majority of the schools the courses were given in connection with preventive medicine and public health.

The need for courses in statistical analysis is evident in view of the increasing number of quantitative procedures and the increasing literature dealing with statistical constants. The only real objection to such courses is that the medical school curriculum is so overcrowded now that the introduction of new courses is almost impossible.

A sample of 23 medical schools chosen at random reveals some interesting facts about the total number of hours devoted to teaching. The mean number of

hours was 4469±278 and the median was 4416 hours. The range was from 5283 to 4071. In the first year the range was from 912 to 1310, in the second year 984 to 1431, in the third year 916 to 1198 and in the fourth year from 812 to 1562.

A satisfactory course in statistics can be given in from 33 to 48 hours, and with the wide range of hours it would appear that such a course could be added in the great majority of schools. It is also to be noted that 18 schools have added such courses to their curricula.

There are several plans which might be followed in order to give students at least a speaking acquaintance with statistical terminology. A few lectures could be given in the first year to introduce the subject; then other courses can use the statistical approach, and thus give the student constant practice in statistical methods.

The plan used in the University of Tennessee College of Medicine was the incorporation of the course into preventive medicine. Prior to 1937 there were 66 hours in the junior year given to field trips in public health. In 1937 these hours were cut to 33, and 33 hours were given to statistics. The value of more than this number of hours for public health field trips for undergraduate medical students is questionable in our opinion. Too many times the instructor in public health has the mistaken idea that he is training future health officers. It should be borne in mind that most of the students will not be official health workers, and the best approach is that of inculcating a point of view to the end that the young physician has a sympathetic understanding of the problems and plans of official health agencies.

The 33 hours devoted to statistics is divided into 16 hours of lecture and 17 hours of laboratory work, and for each hour of lecture about an hour of outside work is expected. The outline of the course is as follows:

I. *Sources of statistical data*:
   A. Census method
   B. Registration method
   C. Case record method

II. *Tabulation of Statistical data*:
   Students are given data to arrange in tabular form. As a rule these data concern the area in which most of the students will practice. These data include births, deaths, deliveries by midwives, per capita wealth of counties, values of crops, tax rates, percentage of homes owned or rented, and other economic data. Actual records from the outpatient department of the hospital are also used as sources of data to be tabulated. These exercises serve to impress the student with the value of complete and legible records as well as to give him training in tabulation.

III. *Graphic Representation of Data*:
   The student is required to make histograms, frequency polygons, line diagrams and scatter diagrams.

IV. *Centering Constants*:
The student takes data from actual hospital records and from assigned problems and calculates the mean, median and mode from grouped and ungrouped data.

V. *The Standard Deviation*:
After calculating the various centering constants the student studies the scatter of the individual variates about the mean and calculates the standard deviation of grouped and ungrouped data. The standard deviation of percentages is stressed in this part of the course.

VI. *Sampling*:
The student carries out sampling problems and from these acquires a working knowledge of sampling variation.

VII. *Differences in Rates and Percentages*:
The student works problems dealing with differences and gets a concept of what constitutes statistically significant differences.

VIII. *The Chi Square Test*:
The student learns how to get up a chi square table, and the use of Pearson's tables. He also learns the limitations of the method.

IX. *The Binomial*:
A few exercises are given which require the use of the binomial, particularly in dealing with small samples.

Along with these laboratory exercises, lectures are given and discussion of the subject matter is encouraged. For the most part, the exercises come from hospital records and articles appearing in the various medical journals.

The students have done surprisingly good work during the three years that the course has been given. The ability of the student to grasp the subject is demonstrated only by the quality of work done, and if this is a criterion of the interest of the students in statistical analysis, then the students here are interested. Certainly, serious consideration should be given to the introduction of courses in statistical analysis in every medical school in this country.

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Association News

At the fifty-first annual meeting of the Association of American Medical Colleges, held in Ann Arbor, Michigan, October 28, 29 and 30, 1940, the following resolutions were passed:

PREPAREDNESS FOR NATIONAL DEFENSE

1. RESOLVED: That there be appointed by the Executive Council of the Association of American Medical Colleges a Committee on Medical College Preparedness which shall coordinate and cooperate with the Committee on Preparedness of the American Medical Association and any other organizations interested and which shall represent the Association of American Medical Colleges before all departments of the Federal Government concerned with preparedness affecting medical students and medical college faculties.

The following committee was appointed: Dr. W. C. Rappleye, Columbia University, College of Physicians and Surgeons, Dr. William Pepper, University of Pennsylvania, and Dr. Fred C. Zapffe, secretary, Association of American Medical Colleges.

2. In keeping with the request of the Federal authorities, the Executive Council recommends that all activities connected with efforts at medical preparedness on the part of medical colleges be routed through the headquarters of the Association of American Medical Colleges as a central agency.

3. The Executive Council instructs the secretary of the Association of American Medical Colleges that in the event of a national emergency he shall use every endeavor to aid the Government through all the facilities of the Association.

4. It is the opinion of the Association of American Medical Colleges that the number of medical students should not be increased on the basis of information at hand. At the present time, there are twice as many physicians per unit of population in this country than in any other country in the world. It is the opinion of the Association of American Medical Colleges that the present output of medical colleges is sufficient to maintain a proper relation between the number of physicians and population to meet the medical needs of the armed forces of the United States.

5. It is the opinion of the Association of American Medical Colleges that as far as possible research activities sponsored, supported or requested by the Federal Government should be continued in medical colleges and research institutes where the facilities, personnel and environment are conducive to the continuance, without interruption, of research activities by such personnel.

6. It is the opinion of the Association of American Medical Colleges that the medical course should not be abbreviated at present inasmuch as a shortening of the course, in order to speed up the output of the medical colleges, cannot be carried out without impairment of present standards of medical education in this country.

* *

Preparation for the Study of Medicine

Recognizing the widening public, cultural and educational interests of medicine, the Association of American Medical Colleges, accepting the recommendation of the Advisory Council on Medical Education, advises its member institutions and the colleges sending students to schools of medicine, that,

conformably to the By-laws of the Association of American Medical Colleges, the collegiate preparation of medical students above the necessary prerequisites to the medical curriculum in biology, chemistry and physics, as defined by each medical school, the further educational development of prospective medical students be directed by the same viewpoints as guide the development of any other collegiate student; the intent of this suggestion being to promote the general education of the medical student rather than his education along a specific or a preprofessional directive.

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The Internship

1. Inasmuch as the internship is now universally regarded as a part of the basic preparation for the practice of medicine and to be fully satisfactory must be integrated with the medical course proper, the Advisory Council on Medical Education recommends that the Association of American Medical Colleges, in cooperation with national medical and hospital organizations and the Federation of State Medical Boards and state licensing bodies, and after consultation with the Council on Medical Education and Hospitals of the American Medical Association, should formulate minimum educational standards for the internship and should prepare a list of hospitals* in this country which meet these standards.

INTERSTATE ENDORSEMENT

2. Believing that the public interest, as well as that of the medical profession and of medical education would be promoted by a satisfactory method of interstate endorsement of licensure, the Association of American Medical Colleges recommends to the Federation of State Medical Boards that all state licensing boards endorse without further examination the licensure of an applicant previously obtained by examination in another state whose standards of education and examination are not lower than their own, provided that the applicant is a graduate of a medical school in the United States and its possessions which at the time of his graduation was on the list of approved medical schools.

*Not for publication.

Of special importance and interest were two symposia: (1) The Internship and (2) Preparation for the Study of Medicine. The last named symposium was presented by members of the University of Michigan faculty. It was a splendid presentation and should go far to clarify the situation with regard to what is the best preparation for medicine about which there are, at the moment, many misunderstandings. Medical colleges can do much to indicate and promote their beliefs in this regard if they will state their requirements for admission so that they will be in accord with what they really want a student to be when he comes to them for study. It was stressed particularly that knowledge, not paper credits, is a large deciding factor in selection and acceptance. What does he know? Can he think logically and clearly? Is his approach to medicine one of understanding that it is in large part an art, in smaller part a science—although some science is absolutely fundamental to medicine as a practice.

Many fine papers on medical pedagogy were also presented. A plea for the establishment of a committee on medical research was made.

All these papers, and the discussion thereon, will be published in the JOURNAL.

College News

University of Minnesota
Medical School

Dr. A. C. Ivy, professor of physiology and pharmacology, Northwestern University Medical School, will deliver the annual E. Starr Judd lecture, January 15, 1941. His subject will be, "The Mechanisms of Gastric Secretion."

A required course in First Aid has been instituted for medical students. The course will consist of fourteen lectures and six practical demonstrations. It is the first course of the kind to be included in the medical curriculum.

Three experiments, designed to engender and conserve energies and resourcefulness of the United States Army, are being carried on in the laboratories of the physiology department under the direction of Dr. Ancel Keys, professor of physiology. One experiment has to do with fatigue in soldiers in marching and field operations, and with means of reducing fatigue and increasing the ability to carry on maneuvers. The second experiment concerns the prevention and treatment of wound shock, especially in emergencies arising on the battlefield; the third, with a study of heart and circulation under conditions of low oxygen supply as found in planes flying at high altitudes.

Dr. Wesley W. Spink, assistant professor of medicine at the University of Minnesota Medical School, has received a grant-in-aid from the Committee on Scientific Research of the American Medical Association to support an investigation of antistaphylococcal immunity and the nutritional requirements of staphylococci. Dr. Spink has also received a grant from Merck and Company in support of a study of ascorbic acid and its relation to the immune mechanism.

The first Annual Minnesota Medical Foundation Lecture was presented at the University of Minnesota Medical School on Tuesday evening, November 12. Dr. Conrad A. Elvehjem, Professor and Head of the Department of Biochemistry, University of Wisconsin, presented the lecture, the title of which was "The Biochemistry of the Vitamin B Complex."

Dr. Cecil J. Watson, Professor of Medicine and Director of the Division of Internal Medicine, University of Minnesota Medical School, was elected Vice-president of the Minnesota Society of Internal Medicine at the meeting of the Society in Rochester, November 11.

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University of Virginia
Department of Medicine

The University has announced a new scholarship in the Department of Medicine. This scholarship was founded in 1939 on the bequest of Dr. James L. Minor, a distinguished ophthalmologist of Memphis, Tennessee. It carries an annual stipend of $350.00.

The twenty-sixth Post-Graduate Clinic sponsored by the University Medical School and the Division of Extension was held November 8th and 9th with the program arranged as a Symposium on Obstetrics and Gynecology: Dr. H. H. Hazen, Consultant Dermatologist to the U. S. Public Health Service, discussed "Syphilis in Pregnancy"; Dr. James R. McCord, professor of obstetrics and gynecology, Emory University, spoke on "Puerperal Infections"; Dr. Herbert F. Traut, associate professor of obstetrics and gynecology, Cornell University, spoke on "Pyelitis in Pregnancy;" Dr. Maurice B. Strauss, Boston City Hospital, discussed "Anemias of Pregnancy;" and Dr. M. Pierce Rucker, of Johnston-Willis Hospital, Richmond, spoke on "Maternal Health in Virginia." Dr. Robert D. Mussey, Mayo Clinic, gave the James Carroll Flippin Lecture,

speaking on the "Toxemias of Pregnancy." Dr. David A. Cooper, assistant professor of medicine, University of Pennsylvania, discussed "Tuberculosis in Pregnancy;" Dr. Edwin C. Hamblen, associate professor of obstetrics and gynecology, Duke University, spoke on "Endocrine Therapy of Ovarian Failure During Reproductive Period;" Dr. Clarence J. Gamble, of Milton, Massachusetts, discussed "Planned Parenthood" and presented a film on The Technique of Contraception.

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University of Illinois
College of Medicine

The medical library of the University of Illinois acquired a number of old medical books among which are the following:

Kircher, Athanasius. Scrutinium physico-medicum contagiosae luis, quae pestis dicitus. Rome, 1658.

Spallanzani, Lazaro. Opuscoli di fisica animale e vegatabile. 2v. Modena, 1776.

Willis, Thomas, 1625-75. Cerebri anatome; cui accessit nervorum descriptio et usus. Amsterdam, 1676.

Willis, Thomas. Pathologiae cerebri, et nervosi generis specimen in quo agitur de morbis convulsivis et de scorbuto. Amsterdam, 1668.

Fauchard, Pierre. Le chirurgien-dentiste ou traite des dents . . . 2v. 2d. ed. Paris, 1746. (Oldest book on dentistry.)

Glisson, Francis. Anatomia hepatis. The Hague, 1681.

These rare old medical books were acquired through the Gehrmann Historical Book fund, a gift to the University of Illinois.

The publication of the Medical and Dental Monograph series was started several years ago. During the past year three monographs were published. They are as follows:

Ernest Gellhorn (and E. H. Lambert): Vasomotor System in Anoxia and Asphyxia. Vol. II, No. 3.

Charles B. Puestow: Studies on Intestinal Motility. Vol. II, No. 4.

Arnold A. Zimmermann: Origin and Development of the Lymphatic System in the Opossum. Vol. III, Nos. 1 and 2.

The separate numbers may be obtained by purchase or exchange with the University Library or the University Press, Urbana.

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University of Colorado
School of Medicine

Two departments have been reorganized. The former Department of Bacteriology and Public Health is now the Department of Bacteriology. The teaching of Public Health has been removed from this department. The former Department of Clinical Pathology is now the Department of Public Health and Laboratory Diagnosis. Dr. Edward R. Mugrage, formerly Professor and Head of the Department of Clinical Pathology, is Head of the reorganized department, with rank of Professor of Public Health and Laboratory Diagnosis.

Dr. Lloyd J. Florio, who for the last three years has been connected with the Public Health project of the Kellogg Foundation, and who received his training in Public Health work at the Harvard University School of Public Health, has been appointed Associate Professor of Public Health and Laboratory Diagnosis.

During the past summer and fall, the School of Medicine reorganized Base Hospital No. 29 (in active service during the first World War), into the United States Army General Hospital No. 29.

Promotions: Ernest H. Brunquist, Ph.D., to rank of Associate Professor of Physiology and Pharmacology; Frank B. Stephenson, M.D., and John S. Bouslog, M.D., to rank of Assistant Professor of Radiology; Jack G. Hutton, M.D., and Osgoode S. Philpott, M.D., to rank of Assistant Professor of Dermatology and Syphilology.

Paul D. Garvin, M.D., Assistant Professor of Clinical Pathology, resigned to enter practice.

State University of Iowa
College of Medicine

Dr. Isaac Starr, Hartzell Professor of Research Therapeutics, University of Pennsylvania, gave the fourth annual Paul Reed Rockwood Lecture on November 13th. His subject was "The Ballistocardiogram; Its Contribution to Our Knowledge of the Commoner Diseases Affecting the Heart and Circulation."

Grants-in-aid for research have been received recently by the following staff members: Dr. Harry M. Hines, of the department of physiology, $5000—from the National Foundation for Infantile Paralysis for study of regeneration of nerve and muscle; Dr. W. D. Paul, of the department of internal medicine, $3500—from the Emerson Drug Company for the study of the action of bromides; and Dr. P. C. Jeans, of the department of pediatrics, $3000—from Mead-Johnson Company for a continuation of studies on infant nutrition.

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University of Texas
School of Medicine

Dr. John J. Lawless, recently assistant professor of anatomy at the University of West Virginia School of Medicine, Morgantown, has been appointed assistant professor of anatomy. J. K. Kline, Ph.D., formerly research chemist with Merck and Company and the Bell Telephone Laboratories, has been appointed assistant professor in pharmacology, with special assignments in the department of preventive medicine and public health.

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University of Tennessee
College of Medicine

Within the next few months, construction will begin on the Diagnostic Clinic and Psychiatric Hospital, to connect directly with the John Gaston Hospital. Estimated cost of the new structure is $450,000. It will contain six floors, the lower four to house the Outpatient Departments of the John Gaston Hospital, and the top two floors the fifty bed Psychiatric Hospital.

All patients admitted to the Western State Hospital at Bolivar will enter the Psychiatric Hospital for diagnosis and classification. Most of these patients will be sent to the Western State Hospital for treatment. Selected cases, enough for about fifteen beds, will be kept in the Psychiatric Hospital in Memphis for the entire course of treatment, for instructive purposes. Medical students will be rotated through the Psychiatric Hospital as clerks, as they are in other Departments.

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New York University
College of Medicine

New appointments: Dr. Henry Edmund Meleney, Hermann M. Biggs professor of preventive medicine; Dr. Conrad Berens, associate professor of ophthalmology; Dr. Wendell L. Hughes, clinical professor of ophthalmology; Dr. Charles W. Lester, assistant clinical professor of surgery; Dr. Robert F. Pitts, Littauer fellow in physiology.

Promotion: Dr. Robert F. Pitts, from instructor in physiology to assistant professor of physiology.

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Indiana University
School of Medicine

Dr. Alexander T. Ross, former research neurologist of the Michigan Farm Colony for Epileptics, now known as the Caro State Hospital for Epileptics, Wahjamega, Mich., has been appointed assistant professor of neurology. Dr. Joseph E. Tether Jr., has been named as assistant to Dr. John D. Van Nuys, director of admissions of the university hospitals.

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University of Oregon
Medical School

Dr. Charles T. Chamberlain, clinical professor of otology, rhinology and laryngology has retired with the title of emeritus professor.

Harvard Medical School

Dr. John E. Gordon, professor of preventive medicine and epidemiology and director of the new Harvard Public Health Unit and Harvard-Red Cross Hospital in England, has been promoted to Charles Wilder professor of preventive medicine and epidemiology. This professorship is not restricted to men in one field of medicine. It was last held by the late Dr. Hans Zinsser, who was Charles Wilder professor of bacteriology and immunology. Dr. Gordon is a member of the Committee on the Teaching of Public Health and Preventive Medicine of the Association of American Medical Colleges.

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Emory University
School of Medicine

Dr. Daniel C. Elkin, Joseph B. Whitehead Professor of Surgery, has been awarded the Matas Medal for his outstanding contributions to the science of vascular surgery.

This award, established in 1933 and financed by the Violet Hart Fund, is rated as one of the two greatest distinctions a North American surgeon can win. It is not given at stated intervals, but only when the board of administrators feel that a surgeon has done original work in vascular surgery sufficiently noteworthy to merit the distinction. Dr. Elkin is the third man to be so honored. He has achieved the astonishingly high record of 50 per cent recoveries in twenty-two cases of stab wounds of the heart and has successfully treated aneurism of the aorta by ligation.

Dr. Russell H. Oppenheimer, dean and professor of medicine, has been elected chairman of the Executive Council of the Association of American Medical Colleges for the year 1940-1941.

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Western Reserve University
School of Medicine

Dr. Torald Sollmann, dean of the School of Medicine of Western Reserve University, and Dr. J. T. M. Finney, professor emeritus of surgery of Johns Hopkins University, received the Degree of Merit of Nu Sigma Nu at the annual convention of the fraternity November 23. Only seven persons have previously received this honor in the history of the fraternity.

The General Education Board has added $12,700 to the grant previously made to the Brush Foundation of the School of Medicine, for the study of child health and development under the direction of Dr. William Walter Greulich, Director of the Brush Foundation and professor of physical anthropology and anatomy.

A grant of $7800 a year for three years has been received from the Commonwealth Fund to be used for the study of kidney disease by Dr. Joseph M. Hayman, Jr., professor of clinical medicine and therapeutics. A similar grant was made by this fund for the same purpose in December, 1937.

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Woman's Medical College
of Pennsylvania

The Obstetrical Society of Philadelphia visited the Woman's Medical College of Pennsylvania on October 10th. The members were particularly interested in the "Cancer Prevention Clinic" and the "Follow-Up Clinic for Cancer Patients" conducted by the Department of Gynecology. Two deliveries and a toxemia of pregnancy clinic were conducted by the Department of Obstetrics.

Dr. Margaret C. Sturgis has been elected Second Vice-President of the Obstetrical Society of Philadelphia for the year 1940-41.

The Lecture Forum is presenting a group of speakers during the year. The two papers which have already been given were by Dr. Esther L. Richards, associate professor of psychiatry, Johns Hopkins University Medical School, on "The Nervous Child of Tomorrow," and by Dr. John A. Kolmer, professor of medicine, Temple University School of Medicine, on "Immunity in Syphilis

with Special Reference to the Role of Spirochaeta Pallida in the Wassermann Reaction."

Dr. Margaret D. Craighill, Dean of the College, Dr. Helen M. Angelucci, '27 and Dr. Ruth Ellis-Lesh, '33 were made Fellows of the American College of Surgeons in Chicago on October 21st.

The Committee on Therapeutic Research of the Council on Pharmacy and Chemistry of the American Medical Association has granted to Dr. Esther M. Greisheimer, professor of physiology, $250 to investigate the effects of sulfanilamide and related compounds on blood sugar and liver glycogen.

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University of Missouri
School of Medicine

Dr. L. J. Wells resigned as assistant professor of anatomy to accept a position in the Department of Anatomy at the University of Minnesota Medical School.

Dr. J. A. Cameron was appointed assistant professor of anatomy to succeed Dr. Wells.

Dr. M. Pinson Neal, professor of pathology, was awarded the Mississippi Valley Medical Society's Distinguished Service Award for 1940 at the annual banquet of the society held at Rock Island, Illinois, September 26. The award is given annually for "unusual and distinguished service to the medical profession." The citation with the award to Dr. Neal was "A recognition of splendid teaching, conscientious and valuable research together with sterling character."

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New York Medical College

November 19, 1940, the Trustees of the New York Medical College, Flower and Fifth Avenue Hospitals formally designated the department of anatomy as the "William Waldo Blackman Laboratory of Anatomy." Dr. Blackman, in honor of whom the department was named, is an alumnus, former professor of anatomy, president of the College, and at present vice chairman of the Board of Trustees.

Professor William K. Gregory, of the American Museum of Natural History, delivered the address of the evening on the subject, "Evolutional Causes of the Misery of Mankind." Dr. C. E. Tharaldsen, professor of anatomy, presided over the ceremonies at which President C. A. Burrett, Mr. Clifford Hemphill and Dr. Charles E. Birch of the Board of Trustees, paid tribute to Dr. Blackman.

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West Virginia University
School of Medicine

Dr. J. J. Lawless has resigned to accept a position of assistant professor of anatomy at University of Texas School of Medicine. Dr. E. Ross Hart resigned to accept a position as instructor in pharmacology at Jefferson Medical College.

New appointments: J. Clifford Stickney, instructor in physiology; James Morrison, instructor in pharmacology; Melvin Schadewald, instructor in anatomy.

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Medical College
State of South Carolina

The Founders' Day was celebrated November 7th. An annual banquet is held in commemoration of the first Thursday of November, 1824, when the medical college first opened its doors.

Records indicate that the first idea of establishing a medical college in Charleston originated with Dr. Samuel Henry Dickson, who discussed the matter in 1821 with Dr. James Ramsay and Dr. Henry R. Frost.

Lack of funds in 1822 prevented the establishment of a school, which was suggested that year by Dr. Thomas Cooper, president of the South Carolina college, and Dr. James Moultrie, who presented a memorial to the state legislature.

After Dr. Dickson and Dr. Ramsay had delivered a course of public lectures

during the summer of 1823, the legislature passed an act in December, 1823, establishing the Medical College of South Carolina. The institution opened the following fall.

Dr. Louis Hamman, associate professor of medicine, Johns Hopkins University School of Medicine, was the principal speaker. Dr. Robert Wilson, dean, also spoke.

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Medical College of Virginia

Dedicatory exercises for the new hospital of the College were held on Founder's Day, December 5, 1940. The main address was delivered by Colonel E. W. Clark, Commissioner of Public Works, Public Works Administration, U.S.A. The exercises were held in the old Monumental Episcopal Church.

The new hospital completed at a cost of approximately $2,500,000.00, with equipment, provides for two new services here, neuropsychiatry and contagious diseases, enlarged facilities for physical therapy and many other activities, including ample provision for teaching.

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Creighton University
School of Medicine

The University last year erected a new two-story building located behind the other buildings of the Medical School. The top floor of this new building houses the Department of Anatomy, and the entire first floor provides a large addition to the Medical Dispensary—almost doubling its floor space. The new building has been completely eqiupped to provide rooms for special clinics such as Eye, Nose and Throat, Cystoscopy, Gastroenterology and Diseases of the Heart. There are twelve rooms in all, and each has been equipped according to the specifications of the various departments. Each departmental head was asked to make a list of desired instruments, and all of these have been purchased by the University. The hours of the Dispensary which were formerly 10 to 12 have now been extended to from 8 to 12 and the first two hours are occupied by special clinics which are attended by senior students.

This year, for the first time, students have been required to put in six weeks in the Summer Dispensary, and the class has been divided into groups which rotate during the entire summer.

Several very well trained young men have been added to the staff of the Dispensary during the past year, and in addition the attendance of older members of the staff reflects their appreciation of the improved working conditions.

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University of Rochester
School of Medicine

Dr. Robert B. Dean, Instructor in Physiology, is now associated with the Physiology Department of the University of Minnesota Medical School, Minneapolis, Minn.

Dr. Charles M. Carpenter has been granted a year's leave of absence, which he is spending at the School of Hygiene, Johns Hopkins University. Dr. Howard B. Slavin is taking his place during his sabbatical leave.

Dr. Robert J. Mueller, formerly Associate Resident in Medicine (Psychiatry) is at present a member of the staff of the Neuro-Psychiatric Institute of the University of Michigan School of Medicine, Ann Arbor, Mich.

At the annual meeting of the American Hospital Association, held in Boston in September, Dr. Basil C. MacLean, Director of Strong Memorial Hospital, was chosen President-Elect of the American Hospital Association.

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Long Island College of Medicine

The Long Island College of Medicine held a Symposium on Chemotherapy, November 13, 1940. The speakers included:

Dr. Arnold H. Eggerth, Associate Professor, Department of Bacteriology, Long Island College of Medicine — "Historical Introduction."

Dr. George W. Raiziss, Professor of

Chemotherapy, Graduate School of Medicine, University of Pennsylvania—"Mode of Action of the Sulfonamides."

Dr. Elliston Farrell, Assistant Clinical Professor, Department of Medicine, Long Island College of Medicine — "Toxic Reactions."

Dr. Charles B. Jones, Instructor, Department of Surgery, Long Island College of Medicine—"The Sulfonamides in Surgery."

Dr. Yale Kneeland, Jr., Assistant Professor of Medicine, College of Physicians and Surgeons, Columbia University — "The Sulfonamides in Pneumonia."

Dr. Alfred Cohn, New York City Department of Health—"The Sulfonamides in Gonococcal Infections."

Dr. Josephine B. Neal, Clinical Professor of Neurology, Columbia University, College of Physicians and Surgeons; Associate Director, Bureau of Laboratories, Department of Health, New York City — "The Sulfonamides in Meningitis."

Dr. Lewis A. Koch, Clinical Professor, Department of Pediatrics, Long Island College of Medicine — "The Sulfonamides in Pediatric Practice."

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University of Utah
School of Medicine

Dr. Charles Blumenfeld, associate professor of anatomy, has resigned to accept a residency in the Cleveland City Hospital. His successor is Dr. C. H. Swunyard, formerly a member of the department of anatomy in the Medical College of the State of South Carolina.

Lectures in medical ethics and economics are being delivered by five local practitioners. Fred W. Clausen, instructor in anatomy, has completed his medical work and is now interning at the Cleveland City Hospital.

The Dean has completely recovered from his illness of last year and is now on full-time duty.

The new addition to the medical building is practically completed. Most of the building is now in use.

Dr. R. Ruggles Gates, F.R.S., recently gave a lecture before the medical students and others on "The Significance of Human Blood Groups."

General News

American Public Health Association

The 69th annual meeting of the American Public Health Association and meetings of related organizations were held in Detroit the week of October 7. Delegates came from every state in the Union, the District of Columbia, Alaska, Hawaii, Puerto Rico, Canada, Cuba, Mexico, Denmark, China and New Zealand.

Officers for 1940-1941: President: W. S. Leathers, Nashville, Tenn.; president-elect: John L. Rice, New York, N. Y.; vice presidents: Robert D. Defries, Toronto, Can.; Charles Edward Finlay, Havana, Cuba; Selskar Gunn, New York, N. Y.; treasurer: Louis I. Dublin, New York; chairman of Executive Board: Abel Wolman, Baltimore; executive secretary: Reginald M. Atwater, New York.

A Committee on Public Health in the National Defense was appointed with the following personnel: W. S. Leathers, Chairman; Stanley H. Osborn, Huntington Williams and Abel Wolman.

Among the resolutions passed was one emphasizing the necessity for maintaining civilian health as essential in national defense and pledging the united support of members to the national defense and to the maintenance of health in a free people.

The 70th Annual Meeting will be held in Atlantic City, N. J., in October, 1941.

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National Health Library

Since its establishment twenty years ago, this Library has brought together one of the best collections of source material in the United States on public health, sanitation, health education and related subjects. It includes 6,000 volumes and 30,000 pamphlets. More than 500 medical and public health periodicals are received regularly from all parts of the world.

Administered by the National Health Council, the Library is intended primarily for the use of the seventeen health organizations which are members of the Council. Individuals who are not members of the supporting organizations may have the privilege of using the Library by paying a small annual fee.

Members from all over the country avail themselves of the privilege of borrowing books from the Library. Nurses and public health workers in small towns in which there are no libraries are especially grateful for the service. Material may be found at the National Health Library which might take days and even weeks to unearth elsewhere. The indexing of this material makes it of especial value for research workers.

To make the current material useful the magazines are indexed in a card catalog. Every week a mimeographed list of the more important articles is issued under the title: ***The Library Index: a weekly index to current periodical literature in the field of public health.*** This publication is available to the public for a small annual subscription.

Miss Isabel Towner is in charge of the National Health Library and Thomas C. Edwards is manager of the National Health Council. Dr. Kendall Emerson, Managing Director of the National Tuberculosis Association, is president of the Council, which includes the following active member agencies:

American Society for the Hard of Hearing, American Heart Association, American Public Health Association, American Red Cross, American Social Hygiene Association, American Society for the Control of Cancer, Conference of State and Provincial Health Authorities of North America, Maternity Center Association, National Committee of Health Council Executives, National Committee for Mental Hygiene, Na-

tional Organization for Public Health Nursing, National Society for the Prevention of Blindness, and the National Tuberculosis Association.

The United States Children's Bureau and the United States Public Health Service are advisory members of the Council. The American Nurses' Association and the Foundation for Positive Health are associate members.

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Fellowships in Psychoanalysis

The Boston Psychoanalytic Institute announces three additional Sigmund Freud Memorial Fellowships for Psychoanalytic Training, to begin September, 1941. These fellowships are open to graduates of a recognized medical school who have had at least one year of general hospital training and two years' work in psychiatry and covers tuition fees only. One additional fellowship for training in applied nontherapeutic psychoanalysis will be open to those who have a doctor of philosophy degree or an equivalent degree in the field of anthropology, sociology, pedagogy and so on. Further information may be obtained from Dr. Moses Ralph Kaufman, chairman of the educational committee, Boston Psychoanalytic Institute, 82 Marlborough Street, Boston. Applications close on February 1.

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Fellowship Fund in Memory of Dr. Brown

Friends of the late Dr. Lawrason Brown, for many years head of the Trudeau Sanatorium, Saranac Lake, N. Y,. have established the Lawrason Brown Memorial Fund to finance one or more fellowships for research in diseases of the chest. The fund will be managed by the Saranac Lake Society for the Control of Tuberculosis, and if at any time that organization should cease to exist the management of the fund will be offered first to Johns Hopkins University. The present committee is composed of Drs. Leroy U. Gardner and James Woods Price, Saranac Lake; Louis Hamman, Baltimore; Esmond R. Long, Philadelphia; David R. Lyman, Wallingford, Conn., and William P. Thompson, New York.

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"The Story of Vitamin B_1"

Merck & Company have issued a brochure on vitamin B_1. This publication presents what is known about this important vitamin — its isolation and synthesis; chemical and physical properties; methods of assay; physiological and pharmacological action; use in animal and human nutrition; role in plant growth. The literature has been reviewed as the published bibliography indicates. It is handy and useful to have all this information presented in easily read form for everyday reference.

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Dr. Carlson Presents Library to University

Dr. Anton J. Carlson, professor and chairman of the department of physiology, Division of Biological Sciences, University of Chicago, has presented his scientific library to the university. His collection includes about 16,000 classified reprints of scientific articles, 1,200 books and research monographs, and complete files of fifteen journals. Dr. Carlson, who completed thirty-six years of active service on the university's faculty when he retired October 1, intends to remain active in research work. He will be professor emeritus.

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Mary Putnam Jacobi Fellowship

The Women's Medical Association of New York offers a Mary Putnam Jacobi Fellowship for medical research, of $1,000, available October first, 1941. It is open to any woman doctor, either American or foreign, who is a graduate of a reputable medical school.

Applications for this fellowship must be filed with the secretary of the committee by March first, 1941, and must be accompanied by statements by persons other than the candidate as to (1) health, (2) educational qualifications, and (3) previous work. The applicant

herself should state the problem she proposes to investigate and send her photograph. As it is not practicable for the secretary to write for letters about candidates, applicants should send with their applications sufficient data to enable the committee to judge of their respective merits.

The recipient of the fellowship will be expected to give full time to the study of her problem and to make a report for publication at the completion of her research.

Application blanks may be obtained from the secretary of the committee: Dr. Phebe L. DuBois, 150 East 73rd St., New York, N. Y.

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Fellowships in the Medical Sciences

Fellowships in the medical sciences, similar to those which have been administered by the Medical Fellowship Board of the National Research Council since 1922, will again be available for the year beginning July 1, 1941. These fellowships, supported by grants from the Rockefeller Foundation to the National Research Council, are designed to provide opportunities for training and experience in research in all branches of medical science. They are open to citizens of the United States or Canada who possess an M.D. or a Ph.D. degree and are intended for recent graduates who are not yet professionally established. In addition to these fellowships the Medical Fellowship Board announces two new groups of research fellowships, made available through a grant from the National Foundation for Infantile Paralysis, Inc. The first group, open to applicants who hold either the Ph.D. or M.D. degree, is for the purpose of providing opportunities for special training and experience in the study of filtrable viruses. The second group, open only to graduates in medicine who have completed one or more years of hospital experience in clinical surgery and are planning a career in orthopedic surgery, is designed to provide opportunities for training and research in those basic medical sciences which will be of particular value in furthering progress in the field of orthopedic surgery.

Fellows will be appointed at a meeting of the Medical Fellowship Board about March 1. Applications to receive consideration at this meeting must be filed on or before January 1. Appointments may begin on any date determined by the board. For further details concerning these fellowships address the Secretary of the Medical Fellowship Board, National Research Council, 2101 Constitution Avenue, Washington, D.C.

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United States Civil Service Commission

The Civil Service Commission calls attention to the fact that there is an urgent need for medical officers and senior and associate medical officers to fill permanent positions in other agencies. Applications will be received until further notice. The positions pay from $3,200 to $4,600 a year. Fourteen specialized branches of medicine are included.

There is also an urgent need to fill junior medical officer positions at $2,000 a year at St. Elizabeths Hospital, Washington, D. C.

Full information and application forms for these examinations may be obtained at the office of the Secretary, Board of U. S. Civil Service Examiners at any first- or second-class post office, or from the U. S. Civil Service Commission, Washington, D. C., or from any of the Commission's district offices.

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Fellowships in Medicine and Dentistry
Graduate School of the University of Illinois

The Graduate School of the University of Illinois has established four research fellowships to be awarded for one year in the fields of Medicine and Dentistry in Chicago at a stipend of $1200 per year (calendar year with one month's vacation). Fellows are eligible

for re-appointment in competition with the new applicants.

Candidates for these fellowships must have completed a training of not less than eight years beyond high school graduation. This training may have been acquired in any one of the following ways, or the equivalent thereof:

1. Work leading to the B.S. and M.D. degrees (In some instances the candidates would have the M.S. degree, or an additional year or two of hospital training beyond the intern year).

2. Work leading to the B.S., M.S. and D.D.S. degrees.

3. Work leading to the B.S. or B.A. degree in a four year collegiate course and to the D.D.S. degree.

4. Work leading to the B.S., D.D.S. and M.D. degrees.

Candidates should indicate the field of research in which they are interested and submit complete transcripts of their scholastic credits, together with the names of three former science teachers as references. March 1 is the dead line for acceptance of applications. Announcement of the fellowship awards will be made April 1, becoming effective September 1.

Formal application blanks may be secured from the Secretary of the Committee on Graduate Work in Medicine and Dentistry, 1853 W. Polk Street, Chicago, Illinois.

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Battle Creek Sanitarium

Wanted: A young physician who would like to develop in the organization, starting as a resident in eye, ear, nose and throat; also one in surgery and one in medicine. Compensation will run around $125 to $150 per month without maintenance, varying with training and ability. Address Dr. John Gorrell, Administrator, Battle Creek, Michigan.

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Correction

Dr. W. C. Davison requests that the following correction be made in his article on "Southern Medical Schools and Physicians of the Past Century and a Half" published in the JOURNAL, March, 1940. He says: "It is one of the earliest, if not the earliest, instance in which a faculty of a medical college established a teaching hospital, instead of the reverse, which is the more usual situation."

College Hospital, West end of Broad Street, (formerly the old Theatre,) has been instituted by the Faculty of the Medical College, for the purpose of furnishing instruction at the bedside of the sick, for Medical Students and the Annual Classes. It is now opened for the reception of Patients, white and black, and those laboring under madness in its various forms. A ward for females, or an obstetrics ward is also established. Those selecting this asylum, may be assured of the utmost care in nursing and medical attendance. The wards are spacious and airy, and the location healthy and retired . . .

The medical department will be under the care of Dr. Frost. The surgical under Dr. Geddings. The obstetrics under Dr. Prioleau. — (From The Charleston Courier, September 3, 1840.)

This information was given by Dr. Robert Wilson, dean of The Medical College of the State of South Carolina.

Book News

The March of Medicine

Number IV of the New York Academy of Medicine Lectures to the Laity. Columbia University Press, 1940. Price, $2.

For some years the New York Academy of Medicine has sponsored highly successful popular lectures on interesting phases of medical history as seen with the perspective of modern medicine. These lectures bring out the highlights of medical progress. Gathered together here in book form, those for 1938 and 1939 make an exceedingly entertaining volume.

While this work is sufficiently authoritative to prove of value to medical men implemented and enriched with a knowledge of the history of their profession, it is sufficiently simple and clear to prove of special value to those who have a marginal interest in medicine such as biology teachers, health educators, instructors in physical education, nurses, scientists, and technicians. And finally the lectures are so well done that all others will find them highly intelligible. The book is recommended to all who would like to know how medicine has kept pace with and contributed to modern civilization.

The Contents of the Book are: I. From Folkways to Modern Medicine, by Walter C. Alvarez; II. Health in Elizabethan England, by Sanford V. Larkey; III. Not So Long Ago, by Cecil K. Drinker; IV. The Romance of Modern Surgery, by Chas. Gordon Heyd; V. The Story of Insanity, by R. G. Hoskins; VI. The Cinderella of Medicine, by Karl A. Menninger.

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Synopsis of Materia Medica, Toxicology and Pharmacology

By Forrest R. Davison, Ph.D., M.B., Assistant Professor of Pharmacology, School of Medicine, University of Arkansas. The C. V. Mosby Company, St. Louis. 1940. Price, $5.

The author stresses the fact that pharmacology is an applied subject, an integral part of medicine. The role of drugs in the treatment of disease is illustrated by the large number of prescriptions included in the text. He has selected for discussion commonly used drugs with established effectiveness, eliminating superfluous material; although important newer drugs are not neglected. This should prove to be a good book for the student but have the numerous references appended to each chapter real value for him?

A Guide to Human Parasitology

By D. B. Blacklock, M.D., Professor of Tropical Hygiene, and T. Southwell, Ph.D., formerly Lecturer in Parasitology, Liverpool School of Tropical Medicine. 4th Ed. A William Wood Book: The Williams & Wilkins Company, Baltimore. 1940. Price $4.

An authoritative presentation of the subject of parasitology.

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The Practice of Medicine

By Johnathan C. Meakins, M.D., Professor and Director of the Department of Medicine, McGill University. 3rd Ed. The C. V. Mosby Company, St. Louis. 1940. Price, $10.

Too well and favorably known to call for comment.

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Abdominal Operations

By Rodney Maingot, F.R.C.S. Eng., Senior Surgeon to the Southend General Hospital and the Royal Waterloo Hospital, London. Vols. I and II. D. Appleton-Century Company, New York. 1940. Price, $18.

A detailed consideration of the technic of modern abdominal operations, the choice of operation in the individual case, difficulties and dangers of operations, pre- and post-operative treatment, immediate and remote results and many problems in abdominal surgery. Fine for the specialist and for him who is in training for surgery, especially abdominal surgery. Printed in extra large type, easily read, and well illustrated.

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Congenital Syphilis

By Chas. C. Dennie, M.D., Professor of Dermatology, University of Kansas School of Medicine, and Sidney F. Pakula, M.D., Visiting Pediatrician to Children's Mercy Hospital, etc. Lea & Febiger, Philadelphia. 1940. Price, $8.

This work covers an aspect of the treatment and control of syphilis which has long been neglected and overlooked. The text is most comprehensive in its scope. A large section of the book is devoted to treatment and there is an important chapter on the differential diagnosis between congenital and acquired syphilis in infants and children. This book is an important addition to the armamentarium of the physician who would enlist in the great current campaign to remove this "shadow on the land."

Methods for Diagnostic Bacteriology

By Isabelle G. Schaub, Assistant in Bacteriology, Johns Hopkins University School of Medicine, and M. Kathleen Foley, Bacteriologist in Charge of the Diagnostic Bacteriological Laboratory of the Medical Clinic, Johns Hopkins Hospital. The C. V. Mosby Company, St. Louis. 1940. Price, $3.

A guide for the isolation and identification of pathogenic bacteria for medical bacteriology laboratories. Recommended.

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The Treatment of Diabetes Mellitus

By Elliott P. Joslin, M.D., Medical Director George F. Baker Clinic, New England Deaconess Hospital; Howard F. Root, M.D., Instructor in Medicine, Harvard Medical School, and Alexander Marble, M.D., and Priscilla White, M.D., Instructor in Pediatrics, Tufts College Medical School. 7th Ed. Lea & Febiger, Philadelphia, 1940. Price, $7.50.

The seventh edition of this classic work is far more outstanding than any of its predecessors. It represents the long experience of Dr. Joslin and his associates in the active care of diabetes. Each collaborator has been allowed the expression of his own individuality, yet the contribution of each has received the approval of all four authors. No other work on diabetes has ever presented so much statistical material in such accurate form. Its tables demonstrate the improvement in treatment and show where the complicating dangers lie. These statistics are arranged in the manner most approved by expert life insurance statisticians. The text stresses the *new* diabetes. The data on the prevention and cure of diabetes in animals is so recent that much of it has not hitherto appeared in print.

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Death and Dentistry

By Martin H. Fischer, M.D., Professor of Physiology, University of Cincinnati. Charles C. Thomas, Springfield, Illinois. 1940.

The author, in his usual trenchant style, states "in sequential form the principles of surgery that underlie the methods that we have found best in the sorry story of the eradication of infectious processes in and about the teeth." He concerns himself only with teeth as foci of infection but for the unobserving or thoughtless he mentions the fact that there are many other such foci—lest he be misunderstood. He points out that dental practice is bone surgery, done in the face of infection, which calls for drastic revision of all dental procedures.

This is a book for the doctor, the man who "sees the patient as a unit, treats him as a unit, and as a unit himself be responsible for the patient's vital resources." The author is a keen observer, a logical thinker, keen to note and interpret facts, therefore this book should serve as an enlightener and an invaluable aid in the study, interpretation and treatment of diseases of the teeth, especially their influence on the body as a whole as a cause of systemic diseases. To mention only a few of the chapters: (6) What the dental surgeon does and may not do; (7) When teeth call for extraction; (8) On extraction and post-extractional care. The chapters (10) "purely literary" and (11) "from pediatrics to geriatrics" are as delightful reading as is a novel. Again, the author must be congratulated on his achievement. It is masterly.

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Taber's Cyclopedic Medical Dictionary

By Clarence W. Taber and Associates. F. A. Davis Company, Philadelphia. 1940. Price, thumb-indexed, $3.00; plain, $2.50.

This is the only medical dictionary, large or small, written (not compiled) by a corps of medical specialists. This work is as much a dictionary of medical subjects as it is a comprehensive medical lexicon. With its 50,000 words, including the latest terms and drugs, this work will answer the requirements of all professional groups concerned with all branches of medicine.

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The Neuroses in War

By Several Authors under the Editorship of Emmanuel Miller, M.R.C.P., with a concluding chapter by H. Crichton Miller, M.D. The Macmillan Company, New York. 1940. Price, $2.50.

This book, now proving its worth in England, will be read in this country by everyone concerned with the problem of nervous responses of people at war. Particularly, it will be indispensable to physicians, psychiatrists, army officers, and all those responsible for community morale.

During the first World War, psychiatrists had an opportunity to study the neurotic casualties of warfare on a scale never before imagined. In the interval of peace they have had time to coordinate the facts then collected and to formulate their conclusions.

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Orthopedic Surgery for Nurses Including Nursing Care

By Philip Lewin, M.D., Associate Professor of Bone and Joint Surgery, Northwestern University Medical School. 3rd Ed. W. B. Saunders Company, Philadelphia. 1940. Price, $3.50.

A modern textbook, designed particularly for nurses, approved by nursing educators, and written by one of America's foremost

orthopedic surgeons; revised and brought completely up-to-date—represents the very last word in orthopedic nursing. It includes an entirely new chapter on *Orthopedic Nursing Care,* covering all the general orthopedic nursing principles and, in addition, orthopedic nursing care in the home and in the clinic. There are also new chapters on *Neurological Orthopedic Conditions,* and on *Treatment of Infantile Paralysis.*

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Progress in Medicine

A Critical Review of the Last Hundred Years. By Iago Galdston, M.D. Foreword by Henry Sigerist, M.D. Alfred A. Knopf, New York. 1940. Price, $3.00.

This book is the story of the recent growth of a great science, whose many facets, so different on the surface, are bound together by an underlying unity of viewpoint and purpose. It is the story of the rise and decline of ideas, of theories and convictions put forth, examined, in some cases challenged and abandoned. In addition, it is a portrait gallery of the great men on whose genius the progress of medicine has rested. Here are not alone Pasteur and Koch, but such other trail-blazers as Paul Ehrlich, Claude Bernard, Brown-Séquard, Mesmer, Elliotson, Braid, Bernheim, Liébeault, Charcot, and his great follower, Sigmund Freud. It is the story not only of what has happened in medicine, but also of how and why it happened, and the men who were the principal actors in this great drama of human progress.

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Landmarks and Surface Markings of the Human Body

By L. Bathe Rawling, M. B., F.R.C.S. Consulting Surgeon to St. Bartholomew's Hospital. 8th Ed. Paul B. Hoeber, Inc. Medical Book Department of Harper & Brothers, New York. 1940. Price, $3.00.

This book retains all of its fine qualities. The author has adopted the British revision of the B.N.A. terminology, except for some of the older terms which are classical or which still retain their place in surgical descriptions. It is a splendid text for the medical student, concise, useful and well illustrated.

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Clinical Urology

By Oswald S. Lowsley, M.D., Director, and Thomas J. Kirwin, M.D., Attending Surgeon Department of Urology, New York Hospital. The Williams & Wilkins Company, Baltimore. 1940. 2 Volumes. Price, $10.

The entire subject is treated in these 2 volumes. The work combines a comprehensive, though necessarily concise, survey of the embryology, anatomy and pathology of the urogenital tract with a manual of modern operative technic.

The surgical procedures described have proved their worth in the wide personal experience of the authors.

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Clear arrangement of the material is an important feature of the work. The architecture of each section is identical, a fact which makes it easy to find information desired.

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Bone Graft Surgery in Disease, Injury and Deformity

By Fred H. Albee, M.D., assisted by Alexander Kushner, M.D. D. Appleton-Century Company, New York. 1940. Price, $7.50.

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